

HOTEL EMPLOYMENT AND THE COMMUNITY IN HAWAII

A Case Study in Development Planning

by

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Thesis presented for the degree of Doctor of Philosophy
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July 1974.



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ABSTRACT

Tourism is the fastest growing industry in many communities and its effects on these communities can be profound. The acceptable level of these effects - limited by the number of visitors to be accommodated and the degree of welcome to be extended - is determined by the community's attitudes toward its resources as defined by its aims and objectives. Determination of such policy requires a clear understanding of the industry's true nature.

The demands of the tourist and his direct effects on the community are the subject of notable interest and activity. The other side of the coin, i.e., the effect on the community of tourism-generated employment, is still the subject of more conjecture than research although, as has been recognized, it may create a threshold beyond which tourism's costs may outweigh its benefits.

It is to a basic element of this structure - hotel employment - that this study is directed for an improved understanding of its precise composition, distribution, departmental structure, community relationships, and also of certain variables influencing these factors with predictable effect.

To insure an understanding of this material and an appreciation of its applicability or nonapplicability in other settings, the presentation of the findings is preceded by a brief description of Hawaii, the area from which the data are derived, and of tourism - its costs and benefits, its problems of capacity, and its tourist personnel - as found and observed under these conditions.

Previously uncollected data, consisting of all available and apparently significant facts regarding 1,602 employees in seven selected hotels with 2,378 guest rooms are extracted, recorded,

and tabulated in various ways for different purposes. These are reduced to comparable ratios, relating to each hotel's capacity, for examination of departmental and hotel characteristics and relationships. Correlations are examined to expose cause-and-effect relationships with dependable predictive value for the planner.

This collation and analysis while pursued in depth is not done as an end in itself; in this it varies from other manpower and employment studies wherein the interest centres on the employee as a source of supply and demand. The end product of this exercise is an understanding of this employee's effects on the community - as a factor in the assessment of the tourist industry.

It is found that the composite hotel employee is unique. To anticipate his effects very specific facts are needed - not only regarding his person, his numbers, and his type of employment, as other studies have found, but also regarding his household and his dependents, i.e., the total direct beneficiaries of this employment who will make demands on the facilities and services of the community.

On a basis of the observed data and conditions it is posited that community growth is not a factor of total employment but of the number of householders who are employed and the number of such households' dependents. These previously unavailable data, necessary for a test of this hypothesis, are selected from the findings and applied to known conditions. The results, when these applications can be compared with past forecasts, are quite

different from those produced by the application of previously assumed data, and the results prove nearer the mark. A promise is indicated of a substantially improved statistical and theoretical base for projections of hotel employment and estimates of its effect - both of which are critical factors in assessing tourism's costs and benefits to the community.

P R E F A C E

A recognized set of specific aims and objectives as a guide for direction and a goad for action were as necessary in this presentation as they are in any planning effort - whether by the individual or by the community. These have not emerged full-blown but have emerged slowly out of an involvement with the theoretical and practical aspects of development planning, in general, and the specific area of tourism. From this background the stages of progress might be noted as the development of (1) an awareness of need, i.e., the awareness of an area of planning in which the application of available methods and materials were not yielding satisfactory results; (2) a belief that conditions in this troublesome area could be improved by a better understanding based on additional information; (3) a belief that the development of such information - including basic data and theories - would be within the scope of a personal effort operating within established time limits; and finally, (4) a belief that the issues involved were of sufficient importance to sustain the personal enthusiasm and conviction required to carry the project through to a conclusion.

This then might be stated as the aim of this presentation: to contribute to the effectiveness of the art and science of planning by strengthening its theoretical and statistical base in a specific area, and by providing a better understanding of this area through an analysis of (1) the precise nature of its internal relationships; (2) the variables that effect these relationships; and (3) any related cause-and-effect, correlative,

or other conditions that might with further definition be of predictive value to the planner.

While this effort is of necessity a personal one involving personal commitments, decisions, and responsibilities, it could not have been executed in isolation. Credit is hereby acknowledged and appreciation is expressed for the help received, directly and indirectly, and for the advice and encouragement as well as material contributions that have been given: to the representatives of hotel management and staff who, since their institutions are to be nameless (hotels A-E, X and Y), must themselves be nameless but who, by making their records available, have made this analysis possible; to the Hawaii State Department of Planning and Economic Development whose many listed citations, herein, indicate the degree of their utility but not the personal effort of planners, economists, and statisticians - particularly Robert C. Schmitt, Nancy Fowler, Virginia Brooks, and Eileen O'Brien; to Dr. Thomas K. Hitch of The First Hawaiian Bank; Aaron Levine and William Grant of the Oahu Development Conference; Otto Orenstein of the Hawaii Economic Association; Theodore F. Ruhig of the Hawaii State Commission on Manpower and Full Employment; Wesley Hillendahl of the Bank of Hawaii; Hawaiian planners such as Larry Helber, Donald Wolbrink, and James Yamamoto; Lt. Col. H.C. Paterson and Roger Carter of the Scottish Tourist Board; J.G.L. Adams and Mike Williamson of the Highlands and Islands Development Board; and the many members of the University of Edinburgh Staff: Ian Appleton, James Hustace, Ivor Samuels, David Stewart, and most parti-

cularly to Professor P. Johnson-Marshall, Mrs J. Grant, and to Dr. Peter D. McGovern for a meticulous review of drafts.

These contributions have in varying degrees been specific. Intangible factors are in these times receiving belated recognition. For such contributions to this presentation, in addition to invaluable proof-reading assistance, sincere appreciation is expressed for the moral support and the stable environment, conducive to work, provided by my wife, Evelyn, with her undemanding and good-humored adaptability to shifting schedules and domiciles.

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ABBREVIATIONS

CMFE	Hawaii State Commission on Manpower and Full Employment
DLIR	Hawaii State Department of Labor and Industrial Relations
DPED	Hawaii State Department of Planning and Economic Develop- ment
EDC	Economic Development Committee
HVB	Hawaii Visitors Bureau
IUOTO	International Union of Official Travel Organizations
ORRRC	Outdoor Recreation Resources Review Commission
SCORP	State (Hawaii) Comprehensive Outdoor Recreation Plan
UNCTAD	United Nations Conference on Trade and Development

INTRODUCTION

Tourism, in some form, has a long and varied history. With the development of current planning methods and the techniques of related professions it has come under closer scrutiny and has developed from the status of an individual or local activity to a recognized major industry with regional, national, and international implications. While the phenomenon is gaining in breadth of recognition it is also being realized that, at the microscale, it has profound local effects that are worthy of attention. There is general agreement on the broader aspects of these effects but there is also recognition of an insufficiency of data on which to base reliable projections.

A review of recent planning reports and related literature shows an intense interest in the tourist and a concern for his actions and motives. He is a source of supply and demand in the community; the industry exists for him.

The industry cannot exist without the tourist; it also cannot exist without the employee to serve him. Studies indicate that a close matching of local supply to tourist demand for labour is vital in preserving a favourable benefit-cost ratio for the industry. Projections of community growth due to hotel employment are the basis for planning of infrastructure, housing, and services - matters which are of interest to both the public sector and to the private developer who may be called on to share in their cost.

In spite of this clear and present need, only general data of a limited nature have been available regarding the number of employees and even less information regarding the type of employment. This limits analysis to what McLOUGHLIN (1970, p.169) refers to as

the simple projection which operates on limited data and is usually a direct extrapolation of observations. Analytical projections which depend on more detailed information may project values through their correlative or cause-and-effect relationships with other independent (and presumably more predictable) variables. Such analytical methods make it possible to introduce different patterns of change in the components of a situation.

As understanding, information and resources improve not only does a more complex picture emerge, but more sophisticated theories which might better explain the phenomenon become possible. (Ibid., p.168)

With the interests of development planning in mind this exercise is directed toward such an improvement in "understanding, information and resources" on the linked hypotheses that:

1. Hotel employment has a substantial effect on the community.
2. This effect is determined by specific variables and observable patterns of relationships that are unique to this employment.
3. These variables and patterns, when identified, will be found consistent enough to have predictive and analytical value for the planner.
4. With an increased understanding of these variables and patterns, based on sound statistical data and theory, more reliable estimates and projections of hotel employment's effect on the community can be expected.

With selection of this subject and the geographical area of study (Hawaii, section 1), and with identification of certain specific problems (section 5), the order of events in the development of the findings can be said to have followed the classic form of the

scientific method, i.e., (1) induction, in which information is collected and organized into patterns; (2) generalization, in which the patterns and theory may be redefined in more abstract form, and correlations or cause-and-effect relationships are analyzed; (3) deduction, or exploration of the conclusions inferred by the prior analysis and statement of theory; and finally, (4) testing, to see whether an application of the derived theory and conclusions to specific problems indicates the probability of an improved performance. (HARRIS, 1966)

In the order of presentation, the stage is first set by clarifying the conditions under which the findings have developed. This is done in section 1, which presents an appraisal of the characteristics and resources of Hawaii, and in section 2, which describes the tourist industry as it has developed and as it is viewed under these circumstances. These two sections present a summary view of a complex industry in a complex area with data given to explain the unique features of the findings as a basis for understanding the adjustments that might be necessary for an application of the findings to other conditions existing in other places.

A description of the survey method is presented in section 3, together with the statistical findings, an analysis of the employee composition and distribution, and an examination of certain control variables. In section 4 a theory and method of application of these data are developed for an analysis of the resultant community. In section 5 the applications of these findings and their implications for the development planner are assessed.

This concern for the development planner is stressed. The interests of the planner cut across many professional disciplines. In recognition of this breadth of vision, this study touches many fields in a manner that may seem superficial to the practitioner in a particular field. Rather than ignore such aspects, however, they have been acknowledged for their influences even if it was found necessary to reduce them to generalities and drastically simplify their complexities.

1. HAWAII, THE AREA OF STUDY

1.1 Natural Resources

- 1.1.1 Land
- 1.1.2 Sea
- 1.1.3 Air
- 1.1.4 Flora and fauna

1.2 Developed Resources

- 1.2.1 Land development
- 1.2.2 Infrastructure and services
- 1.2.3 Building construction

1.3 Human Resources

- 1.3.1 People
- 1.3.2 Government
- 1.3.3 Economy

1. HAWAII, THE AREA OF STUDY

The statistical survey and analysis of sections 3 and 4, which form the basis of this thesis, may be applicable to hotel-community planning in places other than Hawaii. There are, however, distinctive features of this group of islands which should be kept in mind while interpreting the data and conclusions, and it is the purpose of this section of the report to provide an outline of the relevant features of the geographical background. In what must, of necessity, be a limited way it is hoped to transmit not only knowledge of a place, its conditions and situations, but an appreciative understanding and an insight into the way in which these affect the lives and attitudes of people, for "no other island group so remote is so significant in so many different ways." (NICHOLSON, 1972, p.99)

With the wealth of material available this becomes a highly selective exercise. Much material commonly found in the popular sources has been omitted and some material with no direct application to planning has been included for its contribution to a general understanding of local conditions in Hawaii.

1.1 Natural Resources

1.1.1 Land. - The life of the land is preserved in righteousness (Ua mau ke ea o ka aina i ka pono), Hawaii's motto, expresses a respect for the land bred of an island society. The ways of her people are profoundly influenced by her physical location and form. An island philosophy is not that of the exploiter who would "go west, young man, go west", using the land or abusing it and moving on to new fields. To an islander the land and its resources are finite.

If one characteristic were chosen for the significance of its effect it might be isolation, separateness, discreteness, or some such descriptive term recognizing not only Hawaii's position on the globe but her essential form and structure. Standing in the mid-Pacific Ocean, 2397 miles from San Francisco, she has been identified, by this distance to the nearest continental land mass, as the most remote spot on earth and "scientifically among the most remarkable spots on earth." (Ibid.)

Hawaii is the only State in the Union without a contiguous neighbour. Her political boundaries are shared with no others and this distinction is also enjoyed by her counties each of whom has its island insularity with no border problems of overlapping or impinging authorities. Her green belts - with more than a tinge of blue - are inviolable.

Within the island structure this characteristic clarity of division is continued establishing, by climate or physical form, separate communities of distinctive flora and fauna. Warm dry coastal areas rise to lush wet rain forests and, further, to clear cold open heights. Lava flows slice through rich agricultural land and sever modern highways. Remote valleys still exist, preserving

endemic plant forms developed therein over the centuries and unique to that valley alone. Only on the open lava slopes of Haleakala, Maui's extinct volcano, can be found the Silver Sword plant. (HAWAII, DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT (DPED), 1968, p.13)

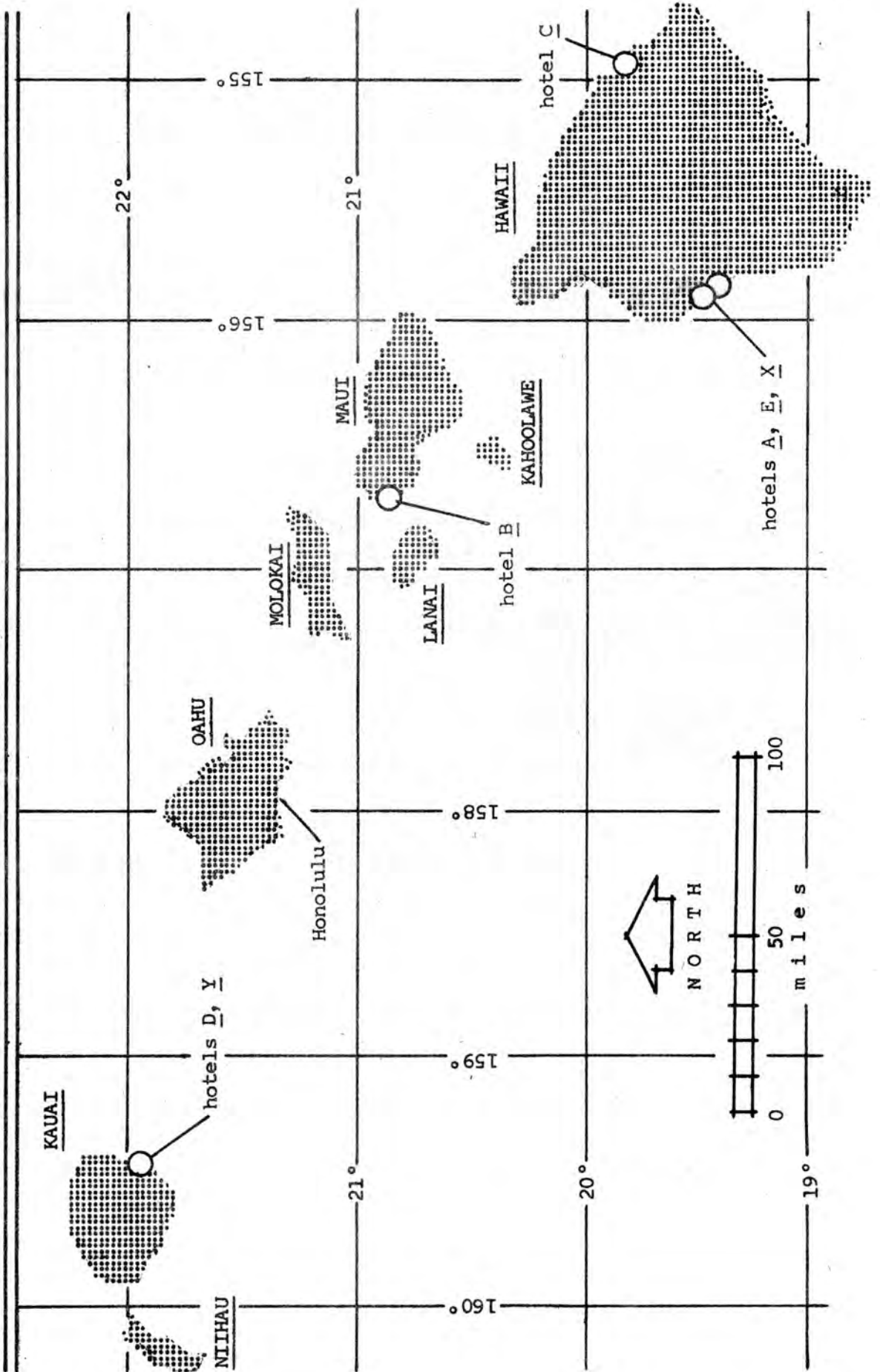
As a State, Hawaii forms an archipelago of eight major islands (figure 1.1.1.1) and 124 minor islands with a total land area of 6,425 square miles and a coastline of 750 miles. From the southernmost tip of the island of Hawaii it runs to the northwest 1,523 miles to Kure Atoll, the westernmost end of the State. (HAWAII, DPED, 1972c, pp.61,62)

The land, to the Hawaiian (and to the volcanologist), is not an inert thing but has a force and a life of its own. According to the theories of Plate Tectonics this land has been formed - and is continuing to be formed - as a series of volcanic islands that have broken through the earth's crust (The Pacific Plate) as it passed over a fixed "hot spot" (SCIENTIFIC AMERICAN, 1972, p.39) or conduit which reaches through the mantle to tap the magma of the asthenosphere 100 miles or more below the surface. (Ibid., pp.47,87)

This passage of the Pacific Plate to the northwest at approximately 5 centimetres per year (TARLING, 1972, pp.88,103) has established the islands in a sequence of creation with the oldest islands to the northwest and the youngest to the southeast.

These relationships are clearly evident and of very practical importance. Kauai, the most northwesterly of the major islands, is the mellowest and is known as The Garden Isle. She is crowned by Mount Waialeale 5,075 feet in height, with its average annual rainfall of 486 inches (maximum recorded here in 1947-1948 was over 624 inches), the wettest spot on earth. (HAWAII, DPED, 1972c, pp.73,74)

FIGURE 1.1.1.1 The major islands of the State of Hawaii



Hawaii, the most southeasterly island, is obviously the youngest and, since her volcanoes are still active, can be considered the locus of the hot spot. The most southeasterly section of this southeasterly island is the most active with periodic eruptions still adding to the land mass. We may assume that in time another island will be added to the chain - again to the southeast.

Volcanic activity figures prominently in both Hawaii's folklore and her building codes. The island of Hawaii is zoned as an area of maximum earthquake risk while all other islands are considered in the zone of minimum risk. The city of Hilo has studied protective dikes for the diversion of lava. Regular reports are published in the daily papers of the island's movement and tilt.

The Hawaiian language has contributed two words to the international language of the volcanologist: aa, for the rough, crumbling, slow-flowing, slag or scoriaceous lava; pahoehoe, for the lava that flows as smoothly as syrup and hardens in glossy plastic forms.

Tsunamis, sometimes miscalled tidal waves, are secondary effects of the earthquakes and, in Hawaii, have had perhaps more disastrous effects than the earthquakes themselves. The city of Hilo, the site of hotel C, has been swept by tsunamis twice in recent history and her coastal area is now protected and preserved as a park. These tsunamis are triggered by earthquakes in the highly active Aleutian and Peruvian-Chilean trenches where the plates are colliding and one plate is being thrust below another. (TARLING, 1972, p.122) The siting of resorts and all other construction is affected and elaborate warning systems are in operation.

It is perhaps a universal human trait that such hazards as the volcanic eruption and the tsunami attract rather than repel. The greatest hazard of the eruption may be in the skies above as every available plane manoeuvres for a view. The curious spectator and his camera must be physically restrained from the crater's edge and from the reef as it is laid bare by the waters receding before the onrush of the tsunami. These are tourist attractions that crowd the resorts and strain all transport facilities.

Whether active or quiescent the volcano is an attraction featured by resorts and Federal Parks. They are a source of not only lava but of cinemas, lectures, hot water, and resort steam baths. Mauna Kea whose slopes often emit lava is the highest mountain in Hawaii, rising 13,796 feet above sea level and 33,476 feet above the ocean floor, making it the world's highest sea mount. While skiers are active on its upper slopes, swimmers dive in the 75° to 80° water at its waist - less than an hour's drive away.

Hawaii's beaches are plentiful but are not evenly distributed. Of the 750 miles of coast line, 185 miles are sanded beaches on the major islands. Oahu has the largest share with 50 miles of her total of 112 miles sanded. Hawaii although the largest island with the longest coast line of 266 miles, has only 19 miles of beaches. (HAWAII, DPED, 1971a, p.3; 1972c, p.63)

A volcanic mountainous land has a large proportion of its area unsuitable for urban or agricultural use. In Hawaii it is considered that, in general, "lands with a slope under 10% are best suited for urban and agricultural uses, while lands with a slope above 20% have limited adaptability for such purposes. Sixty-three percent (3,994 square miles) of the six main islands is under 10%

slope. Forty-five percent (267 square miles) of Oahu, the third largest island, is over 20% slope." (HAWAII, DPED, 1971a, p.2)

Nearly half of the total state area is in forest lands. About one million acres of this are privately owned or adjacent to State-owned Forest Reserves which total 817,197 acres or about 1.3 acres per person in the State. (Ibid.)

1.1.2 The sea. - Hawaii's ambient ocean is, to her, both a means of access and of isolation, her lifeline of supply and her protective moat. The economy found by Captain Cook in 1778 was a self-sufficient closed system. Today Hawaii's economic life is dependent on the shipping of commodities to and from her continental sources of supply.

In 1973 it was estimated that, for the year, commodity movements by sea from the continental United States to Hawaii would amount to 5 million tons, and by air 50,000 tons would be transported. From Hawaii an estimated 2 million tons would be shipped by sea and 25,000 tons by air. This was estimated to be the equivalent of 8.6 tons per person in the islands per year or nearly 35 tons for a family of four. "It is obvious that without full, uninterrupted service between the mainland U.S. and Hawaii, the Hawaiian economy suffers badly, and if the interruption is long and severe, we suffer drastically." (FIRST HAWAIIAN BANK, 1973b, p.16)

The political and environmental advantages of the oceans separating Hawaii as a state and her counties as political entities, are clear. As a protection against physical attack,

however, modern weaponry has reduced their value. Development and exploitation of the ocean and its floor is giving the seaward limit of political control more importance than the actual coast line.

As a recreational resource the ocean is of inestimable value to Hawaii - both as a means of recreation for her amphibious people and as a source of income through its attraction for the tourist. Tourism, as noted in section 1.3.3, is Hawaii's second largest source of income and the water-oriented sports of swimming and sunbathing are at the top of the list in popularity. Hawaii publicises her beaches, and accepts them as a public charge. All littoral lands are publicly owned and the access to them must be maintained. It is realized that the perennial seawater temperature of 70° to over 80° combined with properly maintained beaches constitute a priceless asset for the enjoyment of both the resident and the visitor.

As indicated on table 2.3.2.1 it has been estimated that, on an average weekend in 1970, 883,400 residents of Oahu participated in the listed activities compared to only 58,000 visitors so engaged. About 61 percent or 539,200 of the residents and 48 percent or 27,800 visitors selected the water-oriented activities of swimming, surfing, sunbathing, fishing, and beach-camping.

Aside from recreation and tourism Hawaii has never had a major industry based on oceanic activity. Where she has profited by such industry it has been - as with the 19th century whaling fleets - in a secondary capacity as a servicing centre. Even today, despite her midocean location (or perhaps because of this location with its dearth of shoal water for bait), fishing has never become a primary industry.

In 1969 the Hawaii State Department of Planning and Economic Development working with the Governor's Task Force on Oceanography coordinated and published a report "Hawaii and the Sea" with the avowed aim of examining, organizing, coordinating, and integrating the then-multiplying collection of marine programs, projects, interests, and resources. One of the outgrowths of this study was the appointment of a State Marine Affairs Coordinator, Dr. John Craven, who is also Dean of Marine Programs at the University of Hawaii. Dr. Craven has been effective in directing efforts in many directions but is perhaps best known for his studies and model of a floating marine city that, it was hoped, might become part of a proposed Hawaii Bicentennial Marine Exposition in 1978. (LEAR, 1971, pp.80-90)

Potentials and problems raised by "Hawaii and the Sea" constitute a fairly comprehensive list of forward-looking considerations for an island economy. They include:

1. Pollution control, with special attention to the responsibility for oil spills in the marine environment.
2. Shoreline building set-back law (which is now a part of Hawaii's statutes).
3. Review of activity in the field of marine mining. (Hawaii, at the centre of rich beds of manganese nodules found in the Pacific Ocean, was host to a world conference on the subject in October, 1972.) (HAWAII, DPED, 1973 X-5, pp.1-3)
4. Establishment of a Sea Grant College at the University of Hawaii.
5. Studies of Hawaii as a transshipment area for ship-to-ship, ship-to-air, and air-to-air transshipment of goods to and from the Orient and Continental United States. (Ibid., X-4, p.137)

6. Study of aquaculture. Studies and experiments of fish farming with established shrimp and catfish plants in operation.

(Ibid., IX-1, p.7)

7. Development and improvement of marinas for sport and commercial boating and sailing.

8. Development of commercial fishing, with especial attention to new netting technologies and bait improvement.

9. Commercial development of inter-island transportation by sea with consideration of improved speed and comfort of jetfoil or other potentials. (Ibid., X-4, pp.2,3,7)

10. Consideration of the recent challenges to the "law of the sea" with attention to such aspects as the rights of passage through channels of archipelagos such as Hawaii; the extension of territorial limits; fishing rights; warship, tanker, nuclear-propelled ship and submarine transits; the extent of continental shelves, and the question of who may take and use, and under what conditions, the mineral and other resources of the oceans. (Larger questions of the needs of under-developed nations, "laissez-faire capitalism", and governmental subsidies to giant corporations also loom.) (Ibid., X-5, p.3)

11. Review of sewage disposal outfall, with consideration of alternatives including the possible use of treated sewage as a fertilizer in the ocean.

12. Studies of beaches, surfing sites and harbours.

13. Review of the coral industry, with attention to controls, and management to curb waste and encourage replenishment, and better processing and marketing.

14. Examination and evaluation of the many possible uses of stable offshore floating platforms.

1.1.3 Air. - In the Hawaiian language there is no equivalent for the noun, weather, which is defined as the "state of the atmosphere with respect to heat or cold, wetness or dryness, calm or storm, clearness or cloudiness". It may also refer to "disagreeable atmospheric conditions: as a: RAIN, STORM b: cold air with dampness". (MERRIAM-WEBSTER, 1967, p.1010)

The resident of a land where such conditions are subject to constant scrutiny and discussion might find it hard to conceive of weather that could be so uniform as to be totally ignored. It is true, however, that in Hawaii climatic contrasts are determined by location rather than by season.

Each area has its own characteristics that normally vary within a very restricted range (table 1.1.3.1). Monotony may be avoided by the selection of areas with widely differing conditions. On the island of Hawaii one may choose the Kona Coast (the site of Hotels A, E, and X) with an annual average precipitation of 25.22 inches, and an average temperature range of between 72.1° for the coolest month of the year, and 77.3° for the warmest month. The Hawaii Volcanoes National Park on the same island is also a popular resort centre; its elevation is 3,971 feet, its annual precipitation is 100.69 inches, and its average temperature range is between 57.9° and 63.5° for the coolest and the warmest months. The summit of Mauna Kea, again on this same island, has at its height of 13,796 feet an annual precipitation of only 10.05 inches and an average monthly temperature range of between 30.0° to 42.6° . Continuing to the eastern coast of this island, at the Hilo airport which would approximate the conditions of hotel C, the annual precipitation is 136.62 inches, the average temperature of the coolest month is 70.6° and the warmest month 75.8° .

Table 1.1.3.1 Climatic data for selected places in the Hawaii Islands

(SOURCE: HAWAII, DPED, 1972c, p.73)

Site	Ground elevation (feet)	Average temperature (°F) Coolest month Warmest month	Average annual precipitation (inches)	Comments
Hilo, Hawaii	27	70.6	136.62	<u>Site of hotel C</u>
Haw'n Volcanoes Nat. Park, "	3,971	57.9	100.69	Popular resort area
Kona (Kailua), "	30	72.1	25.22	<u>Site of hotels A, E, and X</u>
Waimea, "	2,670	62.3	40.05	Popular residential area
Mauna Kea summit, "	13,796	30.0	10.05	Relatively inaccessible
Lahaina, Maui	45	71.2	14.53	<u>Site of hotel B</u>
Hana, "	120	71.3	70.65	Popular resort area
Haleakala summit, "	9,960	42.6	50.69	Hiking, riding destination
Lihue, Kauai	103	70.7	43.00	<u>Site of hotels D and Y</u>
Kokee, "	3,600	54.9	72.25	Popular resort area
Waialeale, "	5,075	-	486	Very inaccessible

On the island of Kauai, recordings at the Lihue airport in the neighbourhood of hotels D and Y, show an annual precipitation of 43.00 inches, and an average monthly temperature range of between 70.7° and 78.4° . Also on the island of Kauai at the mountain resort area of Kokee with an elevation of 3,600 feet, one finds an annual precipitation of 72.25 inches and an average monthly temperature range of between 54.9° and 65.5° .

On the island of Maui, hotel B could expect an annual precipitation of only 14.53 inches but in the deep valleys and heights directly above the rainfall would approximate one inch per day. The hotel's coastal temperature would vary between 71.2° and 77.7° for the average of the warmest and coolest months. At the summit of Maui's Haleakala (9,960 feet elevation) within an easy drive from this coast the average temperature variation between the coolest and warmest months is from 42.6° to 50.0° . (HAWAII, DPED, 1972c, p.73)

Comfort is determined by the air's temperature, humidity, and movement. Hawaii's comfort depends on the prevailing north-easterly trade winds which predominate for 85 percent of the year. (HAWAII, DPED, 1971a, p.5) When these breezes slack off or swing to the southeast they bring muggy, sticky (kona) weather. In some areas (notably the Kona Coast of hotels A, E, and X) thermal conditions bring off-shore day breezes and land breezes at night. This results in a sweeping back and forth of the same air which, it is now realized, can accumulate pollutants that might be swept away in a trade wind area. Fortunately this realization has come before major industrialization has entered such areas.

The construction and orientation of each building and the planning of each district consider wind direction as a major factor for its cooling effect and also as a force that can bring rain in a horizontal direction and compete with the earthquake in determining the lateral stresses to which a building will be exposed. Wind, in general, however is considered as a benevolent force. Major storms may bring high winds from any direction but hurricanes have been recorded only four times since 1904 and the island of Kauai is the only major island that has been struck directly.

With the rest of the world Hawaii has become conscious of the hazards of human and industrial pollution. As might be expected, Oahu as the urban and manufacturing centre of the State has the greatest problem and this is under constant surveillance by the Air Sanitation Branch, Environmental Health Division of the Hawaii State Department of Health. In the opinion of the State's planning arm, "various measures of air pollution, such as suspended particular matter and radioactivity, indicate that Honolulu is one of the cleanest cities in the nation". (HAWAII, DPED, 1972c, p.61)

The burning of sugar cane - considered a necessary step in efficient production - has come under recent censure but it is argued that during its life cycle (including the burning) the cane plant removes more pollutants from the air than it introduces. Hawaii's major source of air pollution is the volcano but Madame Pele, the Hawaiian goddess who must bear the responsibility, has not been called to account.

These are qualities of the air itself - the atmosphere - and its relationship to human comfort and well being. We might also consider the air - or air space - for its value or use in transport, exploration and research.

Passenger transportation to and from the islands and between the islands has been completely taken over by the flying services. Both the residents and the multimillion dollar tourist industry are totally dependent on the eight U.S. trunk carriers that serve Hawaii. All first class mail is normally flown to Hawaii at ordinary surface rates. In 1972 The Hawaii Visitors Bureau recorded a total of 2,992,425 persons arriving in Hawaii by air. (HAWAII VISITORS BUREAU, 1972)

In the movement of commodities the bulk is still largely carried by ship but the air volume is growing and was estimated to equal 50,000 tons to Hawaii and 25,000 tons from Hawaii in 1972. (FIRST HAWAIIAN BANK, 1973b, p.16)

Extending a consideration of the air to a study of the heavens would have been an inevitable step for the early Hawaiian navigators. Today Hawaii has become one of the world's most important centres for astronomy as a logical development of its towering but accessible mountains which provide ideal sites and conditions for large and specialized telescopes.

This activity centres on the Hawaii Institute for Astronomy, University of Hawaii, and extends to two areas of activity:

1. Mauna Kea, the 13,796 foot summit on the island of Hawaii, is to be the site of a new \$18,000,000, 142-inch reflecting telescope to be financed, constructed and operated by agencies of the French and Canadian Governments and the State of Hawaii, as represented by the Centre National de la Recherche Scientifique of France, the National Research Council of Canada, and the University of Hawaii.

The University of Hawaii presently operates at this site an 88-inch and two 24-inch telescopes for the National Aeronautics and Space Administration (NASA), and the U.S. Air Force. NASA also has plans for the installation here of the world's first infra-red telescope.

This choice of Mauna Kea by NASA, certifying its qualities, was made after a world-wide survey of ten selected sites tested with identical equipment. Mauna Kea was "adjudged best in terms of altitude, clarity of atmosphere and other conditions". (HAWAII, DPED, 1973 X-4, p.8)

2. A research centre at Maui's 10,023 foot summit of Haleakala, operated by the University of Hawaii, has been chosen by NASA as the site of a laser ranging station - the second in the nation - to work in cooperation with the University of Texas in observations involving the laser beam reflectors placed on the moon by the astronauts of Apollo 11, 14, and 15. (Ibid.)

1.1.4 Flora and fauna. - On a volcanic island that has risen as molten lava from the ocean floor it can be assumed that all plant and animal life have had origins on some other land mass. Coconuts and other seeds may have floated ashore; others may have been brought by birds or on the winds. Some plant foods were brought by the first Hawaiian immigrants - possibly the taro, breadfruit and banana - and recent importations from all over the world have increased the number of exotic species to some 2,000 in number.

The great variety of exposures, elevations, temperatures and rainfall of the many microclimates has led to a complexity of growths. Through the centuries of evolution many of the plant forms have changed radically; of the 1,200 known native species over 1,000 are endemic. (HAWAII, DPED, 1968, p.13) "Biologically it evolved a higher proportion of endemic animals and plants than any other area." (NICHOLSON, 1972)

Many species of grasses, sedges, herbs, ferns, shrubs, and trees are found in the vegetation formations of shrub, forest, parkland, bog and moss lichen. Common are the cocoanut, tree fern, monkey pod, guava, mango, banana, plumeria, bamboo, breadfruit, papaya, ti, kukui, pandanus, and others. The sandalwood, once common, attracted the trader to the orient and became Hawaii's first major export crop; it is now rare. The ironwood or casuarina, and the eucalyptus from Australia are rank growers.

Pineapple and cane sugar are now Hawaii's basic export crops. Coffee, papayas and macadamia nuts are also significant. The breadfruit and taro were the staple foods of the Hawaiians but are now being replaced by such mass crops as potatoes and rice which are imported.

The first Hawaiians also brought with them the dog, pig, and rat. Sheep, goats, deer, boar, and pigs are now found wild. Early cattle ranches paralleled the development of the western United States; on the island of Hawaii is the King ranch - the second largest cattle ranch in the United States.

For so remote a spot a wide variety of song birds were found. Many are now very rare or extinct. The Hawaiian feather capes of royalty took their toll of the gay plumage. The endemic

booby bird and the nene are rare. The latter was considered extinct but has had a resurgence; some of its new stock has come from Great Britain where it had been taken and raised as a novelty.

Hawaii's streams and lakes do not support fresh water fish but they are raised in ponds. Some of these ponds are considered of prehistoric origin and are attributed by the Hawaiians to the menehune or little people of folk lore.

Food was not plentiful in ancient Hawaii. Food that was in short supply, such as the pig, was protected by the prohibiting tabu and reserved for royalty, the alii. Only the alii could afford obesity and it thus became a sign of beauty; some of our queens were vastly beautiful.

Today tabus have been established by such means as the Hawaii Land Use Law which is the first such example of State control in the United States; restrictions on pollution of land, sea, and air; controls for the protection of fish and game, and preservation of the Forest Reserve lands that cover nearly one-half of the total State land area. (HAWAII, DPED, 1971a, p.2)

The State Department of Land and Natural Resources was empowered by the 1970 Legislature to establish a Natural Area Reserve System "to protect and preserve unique natural assets for the enjoyment of future generations by providing base lines against which changes made in the environments of Hawaii can be measured." These Reserves have the objective of preserving in as natural a state as possible areas of land and water which:

1. form representative units of ecosystems containing the diversity of terrestrial or aquatic biota of the islands,

2. have unique geological or physiographic significance, or
3. are necessary for preserving endangered species of Hawaiian ecosystems biota.

It is expected that these areas will be used for research in natural sciences, as teaching laboratories, for reservoirs of natural genetic materials, or for preserving viable illustrations of Hawaii's natural heritage. (Ibid., p.11)

1.2 Developed Resources

1.2.1 Land development. - An indication of the type and degree of development occurring in Hawaii is given by a review of the actual distribution of land uses on each island. For the purpose of this study precise definition is not necessary (which is fortunate since estimates vary widely). The State Department of Planning and Economic Development comments that "considerable caution is necessary in comparing statistics from different sources on land use, ownership, or tenure. Variations in definitions and survey dates seriously affect comparability in many instances, even where terminology is relatively unambiguous and misinterpretation seems unlikely. An example of such difficulties is the wide range in estimates of Federal land, with State totals ranging from 309,000 acres to 327,000. Recent statistics on military land use are likewise confusing, going as high as 175,000 acres and as low as 56,000." (HAWAII, DPED, 1972c, p.75)

These differences are not explained but it seems possible that such variations must involve radically different definitions or, perhaps, purposes of measurement. Do the terms "Federal" and "Military" imply ownership, control, or type-of-usage of the land? Land listed by ownership or control might serve any of the full range of uses; to mix or compare it with lands that are categorized by use can only confuse. Similarly, does the term "forest" describe the character of the land or its use; might portions of this land be considered in other listings as recreational land, unused open space, game preserves, water sheds, or industrial timber land? Might "unused open space" be zones for a potential use and so listed on other estimates?

Table 1.2.1.1 indicates an estimated division of use for each island as presented by one source. It is explained that "agriculture" includes grazing land (76%), sugar cane (17.3%), and pineapple (4.6%), with the remainder divided between such uses as orchards, vegetables, water crops, forage, dairy, poultry, swine, feed lots, salt beds, and idle land. Recreational land is disposed in National Parks (69%), game management areas (26%), and in other recreational areas (5%). Possibly other recreational areas might be found in urban and military lands. Urban land is divided into civilian (39%), military (12%), and undeveloped subdivision (49%). Presumably this military land is in addition to the other listing of such land. (CHING and SAHARA, 1969, pp.18,19)

Table 1.2.1.2 presents material compiled by the Hawaii State Department of Transportation, Advance Transportation Planning Office, 1969 land use files for the island of Oahu. Urban land is broken down into its uses of residential, industrial, commercial, hotel, public buildings, public open spaces, and highways and streets; the total is 52,240 acres in urban use compared with the total of 56,850 acres in table 1.2.1.1. The 193,304.23 acres in unused open spaces might be compared to the 186,443 acres of table 1.2.1.1 comprised of forest, recreation, and barren waste lands. The total Oahu area of 388,928 acres on table 1.2.1.1 compares with the 381,934.85 acres of table 1.2.1.2 and can be further compared to a total of 379,328 acres stated by the Bureau of the Census. (HAWAII, DPED, 1972c, pp.76, 77, 188)

Table 1.2.1.1 Land use acreages in Hawaii: 1968

(SOURCE: HAWAII, DPED, 1972c, pp.76, 188)

	OAHU	KAUAI	MAUI	HAWAII	MOLOKAI
FIVE-ISLAND TOTAL					
Urban	56,850 14.6%	4,550 1.3%	6,204 1.3%	86,575 3.4%	1,091 0.7%
Agriculture	111,580 28.7%	116,937 33.0%	242,408 52.0%	934,828 36.2%	107,352 64.2%
Military	35,055 9.0%	1,886 0.5%	- -	791 0.0%	316 0.2%
Forest	148,799 38.3%	196,271 55.4%	170,539 36.6	908,083 35.1%	50,375 30.1%
Recreation	5,184 1.3%	11,244 3.2%	18,980 4.1%	231,750 9.0%	415 0.2%
Barren, waste	31,460 8.1%	23,224 6.6%	28,301 6.1%	422,293 16.3%	7,555 4.5%
T O T A L	388,928 100.0%	354,112 100.0%	466,432 100.0%	2,584,320 100.0%	167,104 100.0%

TABLE 1.2.1.2 - Oahu land use summary: 1969.

	Area (in acres)		
	Oahu	Honolulu	Rest of Oahu
Residential	22,676.00	8,309.47	14,366.53
Industrial	6,304.94	2,622.62	3,682.32
Commercial	1,645.23	1,024.57	620.66
Hotel	97.87	90.73	7.14
Public buildings	5,226.08	2,372.90	2,853.18
Public open spaces	7,795.17	2,660.40	5,134.77
Highways and streets	8,495.00	3,718.00	4,777.00
Agriculture	88,739.90	1,004.95	87,734.95
Military	47,650.43	5,394.53	42,255.90
Unused open space	193,304.23	27,540.90	165,764.14
T O T A L	381,934.85	54,738.26	327,196.59

(SOURCE: HAWAII, DPED, 1972c, p.77)

Acreage as a unit of measure is, quantitatively, a two-dimensional indicator without consideration for the intensity or the economic value of use but it can tell us many things. Oahu, with only 14.6 percent of its area in urban use, has over four times the proportion of land in such use as its nearest competitor, Hawaii, although Hawaii has over 50 percent more acreage so employed.

Ninety-two percent of the State military land is on Oahu and it has less land in agriculture than any other island.

The tourist industry is Hawaii's second largest producer of income and the bulk of this is generated on Oahu. Table 1.2.1.2 indicates that, in terms of land, the hotels on Oahu occupy only 0.18 percent of the urban land and only 0.025 percent of the island's total acreage.

It has been noted in section 1.1.1 that roughly 63 percent of Hawaii's six main islands is prime agricultural or urban land with a slope of less than 10 percent. Development can be grouped according to its location into one of three general areas: on the coast, in the valleys, or on the heights. For its ease of access, commercial and industrial development is usually found on the coastal plains. The valleys and heights are largely for residential use.

Hawaii's cities and villages were located to serve either of two basic functions: that of a seaport, or of a plantation town. More recent activities such as those of the military or of the tourist industry have not changed this basic pattern. The tourist is most attracted to the coastal area with its beaches and warm, dry climate. These areas are, too, easy of access for servicing and large tracts are held by plantations and estates with the interest and the ability to carry out extensive development.

Recreational use of the heights such as those at Kokee on Kauai, Haleakala on Maui, and the Volcano Park on Hawaii are used most frequently by the residents who seek the bracing air as a change from the mildness of the coastal cities.

Tables 2.3.2.1 and 2.3.2.2 show the degree to which the mountain-oriented activities of hunting, hiking, camping, horseback riding and shooting are limited to the residents. Trails are developed and maintained by the Parks departments and wandering from these trails is discouraged; weathered volcanic rock is treacherous, ridges can narrow to a knife edge without room for a horse to turn; even on islands of this size the terrain can be so confusing that hardy combat-trained men have been lost for days. The rescue squad of the Honolulu Fire Department is kept busy picking inexperienced hikers from sheer cliffs with roping techniques or helicopters.

Since Hawaii's subterranean water reservoir is dependent on the seeping of rainwater through the ground below much of her forests, large areas are set aside as water reserves with limited or prohibited access to prevent pollution.

Hunting is developed and encouraged in some areas. Mountain goats, wild pig and deer are popular targets. Conservationists are concerned over the damage that grazing by both wild and domestic animals has caused. Proposals to import axis deer for sport have been bitterly opposed.

These concerns of the uplands are problems of resident useage. The tourist development is very nearly totally restricted to the necklace of resort areas - actual or potential - that ring each island. This restriction simplifies the planner's problems by limiting the infrastructure decisions to those of timing and sequence rather than alternate directions of growth.

1.2.2 Infrastructure and services. - Government's most powerful tool for the implementation of land use policies is its control of the amount, kind, and timing of infrastructure installation. It is this act of site preparation or creation, constituting tangible evidence of development approval, that gives the private investor assurance of governmental backing. Government, on the other hand, requires a demonstration of good faith and performance on the part of the developer. A return must be forthcoming on the expenditure of both public and private funds. Both public and private development must go forward in coordinated steps; a performance lag by either party can be costly to the other. It is now becoming

accepted practice in Hawaii to judge a developer's progress incrementally and to withhold or reverse planning approval if performance is inadequate. Developers may also be required to bear initial infrastructure costs with assurances of future cost adjustments.

The community or government inexperienced in the exercise of resort development seldom realizes the extent of the commitment that accompanies such a step. The cost of infrastructure and public services has been a key factor in Hawaii's decision that the isolated resort is to be avoided. It is now realized that such a resort will form the nucleus of further development requiring the full range of services and facilities of the complete community.

"Resort developments should be clustered. Scattered development adds many problems that well-planned concentration can lessen. . . Large, isolated resorts should be avoided unless an entire new town with its own economic base is contemplated."
(HAWAII, DPED, 1972a, p.127)

Hawaii's introspective planning literature is replete with such conclusions - all in agreement. Other factors reinforcing these decisions are discussed under their appropriate headings; but all are in step. Concentration benefits the government, the developer, and the tourist.

The community that services the resort hotel in Hawaii demands the full range of facilities of any prosperous area. This is not a working class, low cost housing facility but will include the full range of employees from other basic industries, retired and the elderly as well as the families of the employees themselves. Table 1.2.3.3 lists the facilities expected in the median home.

Hawaii is served by all communications media and an extension of such service will be expected. Recent statistics indicate that the State has 446,000 telephones in service with a system that has been a leader in development since 1880. Regular daily newspaper circulation began in 1882; today there are seven daily papers, the top three of which had a circulation in 1970 of about 217,252. There are 31 radio stations and 12 television stations.

Electricity is generated with oil as the source of power. In 1970 electricity sales exceeded 3.7 billion kilowatt-hours, or 6,822 per housing unit. Manufactured gas sales totalled 28 million therms. (HAWAII, DPED, 1972c, p.157)

The private automobile is the common mode of transport. Table 1.2.3.3 shows that 42.9 percent of homes have two or more cars. In 1971 3.7 billion vehicle miles were driven by 524,000 licensed drivers on 3,660 miles of streets and highways throughout the State. Motor bus transport has declined in Honolulu from 93 million passengers in 1944 to 23.7 million in 1970. (Ibid., p.168) Touring buses are available for the visitor and rental cars are popular - usually self-driven.

All scheduled inter-island travel is by air. In 1970 the two scheduled airlines and a number of air taxis reported carrying 3.0 million inter-island passengers, 52 million pounds of air cargo, and 14 million pounds of air mail.

Transpacific planes listed 5.3 million passengers in 1971, 116.5 million pounds of incoming air cargo, 67 million pounds of outgoing air cargo, 25 million pounds of incoming air mail, and 18 million pounds of outgoing air mail. (Ibid., p.176)

In 1972-73 Honolulu International Airport serviced more than 9,400,000 passengers, "placing it among the 10 busiest airports in the U.S. Total passengers statewide, including many Hawaii residents, exceeded 15.1 million." (HONOLULU AIRLINES COMMITTEE, 1974)

The facilities and personnel to provide these services constitute a considerable industry in themselves. As shown in table 1.2.2.1, it is estimated that "the direct dollar impact from airlines operating through Honolulu International Airport" was \$237,522,000, and "of this amount some 68% - \$162 million - went for wages, employee benefits and for goods and services purchased locally." (Ibid.)

TABLE 1.2.2.1 Airlines and airports in Hawaii: Summary of economic impact - fiscal year 1972-1973.

Direct payroll	\$84,801,000
Rents	4,727,000
Employee benefits	11,024,000
Airport use charges	8,800,000
Taxes	6,051,000
In-flight food	14,155,000
Goods and services purchased locally	23,676,000
Communication costs	2,340,000
Advertising and promotion in Hawaii	2,500,000
State of Hawaii bond debt service paid	17,342,000
Fuel purchases	62,106,000
	<hr/>
Total estimated annual economic impact	\$237,522,000

SOURCE: HONOLULU AIRLINES COMMITTEE (1974)

1.2.3 Building construction. - Hawaii's equitable climate made so few demands on her people that shelter was never a problem. Development of building materials and techniques was never forced by necessity. The house did not achieve the importance bestowed by the owner to whom its protection from the weather meant a difference between life and death; it did not have the care and ingenuity exercised in its design and refinement.

The familiar grass shack of song and story was, in reality, the only building form. It varied in size from the lowly hut into which the commoner crawled, to the commodious houses of royalty, but there were few variations in the wood frame structure lashed with sennit and thatched with pili grass. Masonry walls of lava rock and ceremonial platforms very nearly completed the extent of Hawaii's indigenous construction.

All races coming to Hawaii have brought their traditions including architecture and art: New England wooden colonial; Chinese wood membering, colour, and roof tiles; the taste and delicacy of the Japanese shoji screens, tatami mats, and garden textures. These have been adapted and blended in residential construction where homes may stand open to the trade winds, protected from the sun and rain by broad eaves. Industrial, commercial, and institutional building may reflect local conditions and influences but the expression is usually superficial. Heating is not necessary but airconditioning allows the designer to enclose the building and plan it as he would for any other latitude. Modern technology makes it possible to use the same materials and methods that are found around the world.

Virtually all of Hawaii's structural materials are imported. Cement and concrete products are the exception; sand, gravel, clay, lime, pumice and volcanic cinder, and bauxite are available. Local hardwoods are estimated to total only three percent of lumber consumption. (FIRST HAWAIIAN BANK, 1973b, p.10)

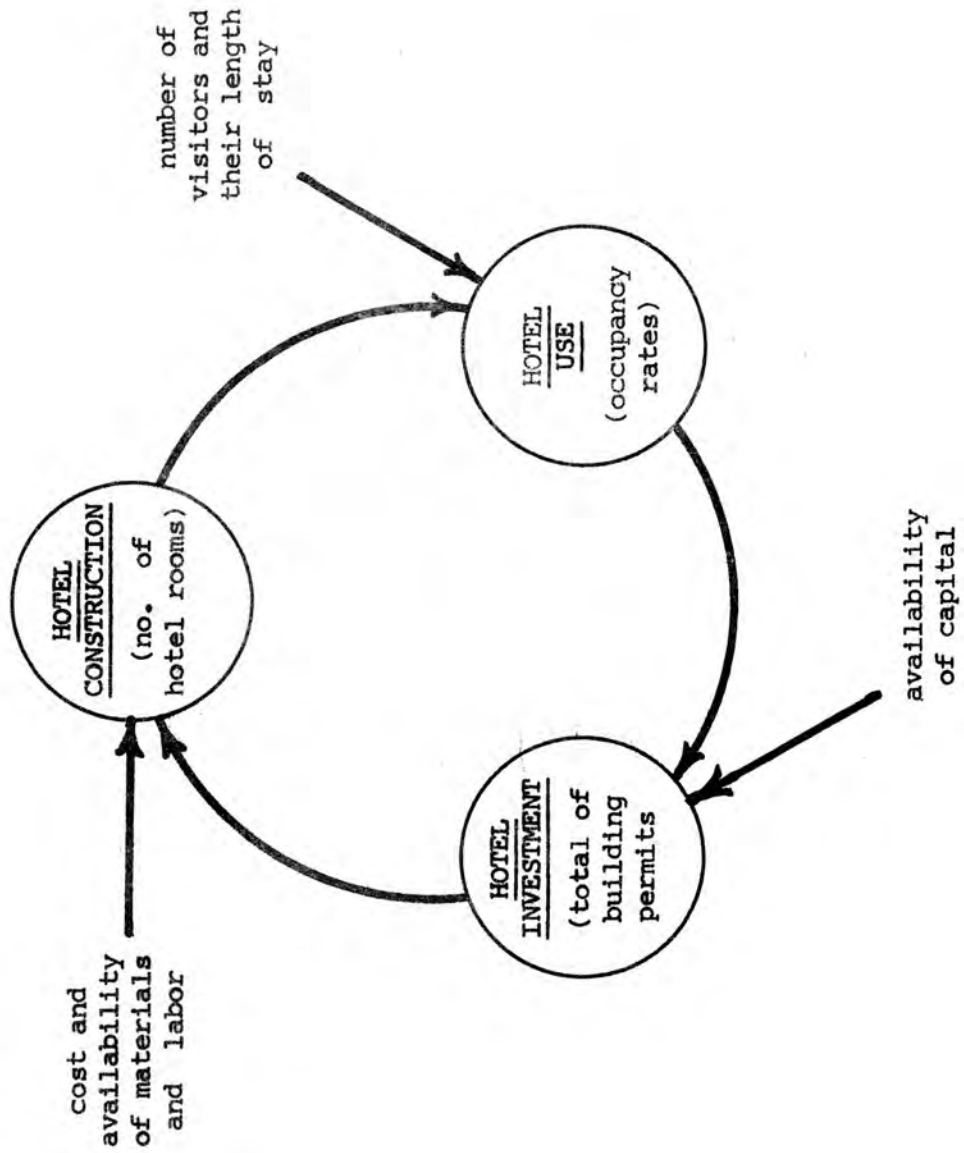
Construction at its 1970 peak accounted for 7.6 percent of total employment in the state, compared with only 4.3 percent in the nation as a whole. Total construction put in place was valued at over \$783.8 million or the equivalent of 22.6 percent of total personal income compared with a national average of only 11.7 percent. (FIRST HAWAIIAN BANK, 1973b, p.10)

Of this total industry two sectors are of particular interest in this report: (1) the amount of hotel construction, and (2) the amount, kind, and adequacy of residential construction, i.e., the accommodation for housing the total community including the hotel employees.

The amount and placement of resort development is the subject of a growing mass and variety of published statistical data. The most significant and often quoted indices have an interdependent relationship as indicated in figure 1.2.3.1. Their value lies not only in their applicability but in their ready availability and relative reliability. Lines of influence form a closed cycle or spiral with external conditions exerting their positive or negative influence, giving impetus to the action or restraining it.

The cycle might be said to start with the commitment of capital for resort development. This decision is influenced by the conditions of supply and demand as indicated by the availability of

FIGURE 1.2.3.1 The relationship of commonly available indices of hotel investment, construction, and use



capital and the need for facilities as expressed by the rates of occupancy. As used here this index is measured in monetary terms by the published totals of building permits issued by the building departments of each county. As an index this measures the intent and not the reality of construction; the two will vary in both time and value. Construction time introduces a lag of at least one to two years. The final cost of construction is not published and is usually known to very few.

A dependable and useful measure of the actual amount of construction in place - appearing at least one to two years after the declaration of intent - is commonly expressed in terms of capacity, i.e., the number of hotel rooms, rather than the cash or investment value.

The occupancy rate, determined by the number of rooms and the number of visitor-days (itself determined by the number of visitors and the average length of their stay), is expressed as the percentage of rooms that are occupied. The rate is readily available and accepted as a reliable running index of the supply-demand balance; as such it is observed and influences the placement of investment capital, thereby closing the cycle of figure 1.2.3.1.

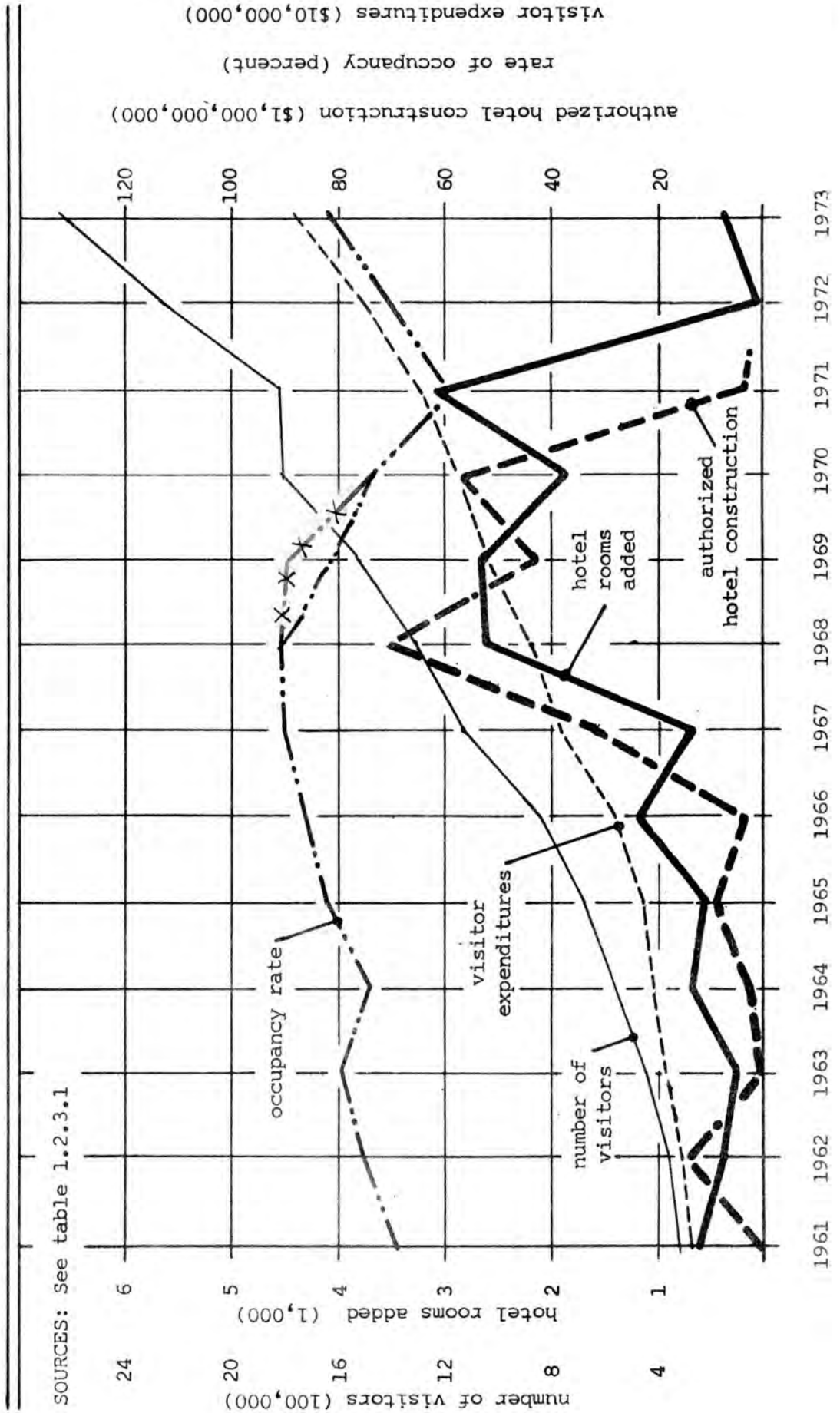
These relationships can also be seen in the indices recorded on table 1.2.3.1 and presented graphically in figure 1.2.3.2. The vulnerability of the relationships to unpredictable internal as well as external influences is clear. This ten-year period was one of steady growth for the tourist industry, as measured by the number of visitors and the amount of visitor expenditures. Through 1967 occupancy rates increased from a barely profitable 70 percent to a strong 91 percent.

TABLE 1.2.3.1 Data recorded in indices relating to the construction and use of hotels in Hawaii: 1961-1972 (see fig. 1.2.3.2)

Year	Authorized hotel const. (\$ million) (a)	Hotel rooms added (b)	Rate of occupancy (%) (c)	Visitor expenditure (\$ million) (d)	No. of visitors (million) (thousand) (e)
1961	390	602	69.7	137	319
1962	13,330	378	75.8	154	362
1963	340	252	79.2	186	429
1964	3,043	630	72.8	205	564
1965	8,816	518	82.6	225	687
1966	2,949	1,195	86.0	280	835
1967	30,929	662	90.8	380	1,125
1968	71,591	2,576	91.0	440	1,315
1969	43,199	2,624	89.9 81.9	525	1,527
1970	56,585	1,862	74.1	570	1,799
1971	3,243	3,031	58.9	645	1,819
1972	(n.a.)	57	70.0	750	2,244
1973	(n.a.)	303	81.5	890	2,631

SOURCES: (a) HAWAII, DPED, 1972a, p.25
 (b) HAWAII VISITORS BUREAU, 1974, p.27
 (c) " " " " p.25
 (d) " " " " p.1
 (e) " " " " "

FIGURE 1.2.3.2 Data recorded in indices relating to the construction and use of hotels in Hawaii: 1961 to 1972



Occupancy rates of 70 to 75 percent represent the break-even point for many local hotels. Occupancy rates of slightly over 75 percent lead to only a modest increase in hotel investment; over 80 percent to a greater expansion; judging from past experience occupancy rates of 85 percent and over produce a tremendous increase in hotel construction. (HAWAII, DPED, 1972a, p.25)

The distortions that followed this period of vigorous but balanced growth were caused by a 1968 surge of building applications anticipating a more restrictive zoning ordinance taking effect in early 1969. The results of such a peak were predictable: a plummeting of investment with the exhaustion of available and interested capital; a rise of construction to an unhealthy and unsupportable plateau for the following years while the committed capital was spent; and a sharp drop in the occupancy rate to unprofitable levels as the unwanted and unneeded facilities became available. (figure 3.4.1.2)

These distortions are not presented as normal conditions but they do illustrate dramatically the actions and reactions of the indices to stimulation that could be produced by many ever-present causes. The time-lag between the commitment of funds as a leading indicator and the competitive appearance of the facilities can be seen. In a steadily growing environment of tourism it appears that occupancy rates tend to vary in inverse proportion to the number of hotel rooms constructed. Supply and demand move in a leapfrog fashion rather than abreast or in file.

Trends may change but given the conditions of a potential investor and a demand for hotel facilities three factors have been seen as leading to an imbalance of investment and to overbuilding. (HAWAII, DPED, 1972a, pp.25,26)

(1) Hotel investment, in a situation of rising costs and appreciating land values, provides a built-in hedge against inflation, i.e., a situation in which it is probably cheaper, even after considering depreciation, to build today rather than tomorrow.

(2) The bullish nature of the investment process encourages a belief in the continuation of trends, overlooking or underrating the unstable, unpredictable vulnerability of the travel market. When a change of trend does occur or an imbalance becomes apparent the construction time lag causes supply to over-run the turning point exaggerating the imbalance.

(3) The investor may not appreciate the fact that what has attracted him to a situation has undoubtedly attracted others. When the plans of others become apparent conditions may be very different from those upon which decisions were based - but commitments may by then be irrevocable. The classical problems of location theory and of acting on less than perfect information become clear. (McLOUGHLIN, 1970, p.58)

Until tourism becomes a major factor in the economy of a community its demands may not be appreciated. While these demands can be met by the existing community facilities no problem is seen. It is when values of land, labour, and materials soar that concern is felt. When the commuting distance of employees becomes excessive and no local housing can be found for employees a problem is recognized. Hawaii is reaching the point where it is considered that "the trend for resort development in the 1970's will take the form of large-scale, master-planned resort-residential communities."

(HAWAII, DPED, 1972a, p.28)

Whether the full implications of such a commitment are realized is not clear. In a country where the "new town" is often a dormitory suburb for the affluent, a resort-residential community may not include housing that the employees can afford. "Initial hotel development in an area is the signal for surrounding land values to rise. As a result, it is very difficult for the private sector to develop low-cost housing required for hotel employees". (Ibid., p.123) State planners are now considering the wisdom of making approval of planned resort developments contingent upon the provision or existence of sufficient housing to meet the demand that will be generated by the development. (HAWAII, DPED, 1972b, p.45)

The provision of all such housing is considered a problem for private initiative in the U.S. Table 1.2.3.2 shows that less than 3 percent of Hawaii's housing is State owned or assisted. Federal housing for the armed forces is only about 6 percent of the total and an overwhelming 91 percent is in private ownership. Of this 50 percent is rented and 41 percent is owner-occupied.

A quantitative analysis of the additional housing demand created by direct hotel employment is reviewed in the latter sections of this dissertation. An idea of what facilities will be expected is seen in table 1.2.3.3.

TABLE 1.2.3.2 Distribution of housing by ownership: Hawaii, 1950-70

	1950	1960	1970
TOTAL HOUSING UNITS	120,606 (100%)	165,506 (100%)	216,568 (100%)
Private ownership	108,899 (90%)	148,850 (90%)	197,030 (91%)
Owner occupied, fee	30,373	49,798	68,422
" " , lease	1,502	6,247	20,802
Renter occupied	77,024	92,805	107,806
Federal ownership			
Armed services	7,231 (6%)	12,115 (7%)	13,641 (6%)
State owned or assisted	4,476 (4%)	4,541 (3%)	5,897 (3%)

(SOURCE: HAWAII, DPED, 1972c, p.202)

TABLE 1.2.3.3 Housing characteristics: Hawaii, 1950 to 1970

	1950	1960	1970
Housing characteristics			
Median value (owner occupied) (\$)	12,283	20,900	35,100
Median Rent (renter occupied) (\$)	32	64	120
Population per occupied unit	4.1	3.9	3.6
Median number of rooms	4.3	4.5	4.6
With more than one bedroom (%)	(N.A.)	21.5	39.6
With three or more bedrooms (%)	(N.A.)	46.3	52.8
In structures 10 years old or less (%)	(N.A.)	36.0	39.8
Moved into unit previous 15 months (%)	(N.A.)	30.8	29.7
Vacancies (%)	6.6	7.5	5.9
In one-unit structures (%)	71.9	74.2	65.0
Housing facilities			
With dishwasher (%)		(N.A.)	17.1
With food freezer (%)		18.8	21.0
With television (%)		77.9	93.4
With two or more automobiles available (%)		25.4	42.9
With airconditioning (%)		1.5	11.3
With clothes washing machine (%)		80.1	74.7
With clothes dryer (%)		7.6	28.4
Lacking some or all plumbing (%)		(N.A.)	5.6

(SOURCE: HAWAII, DPED, 1972c, pp.200, 201)

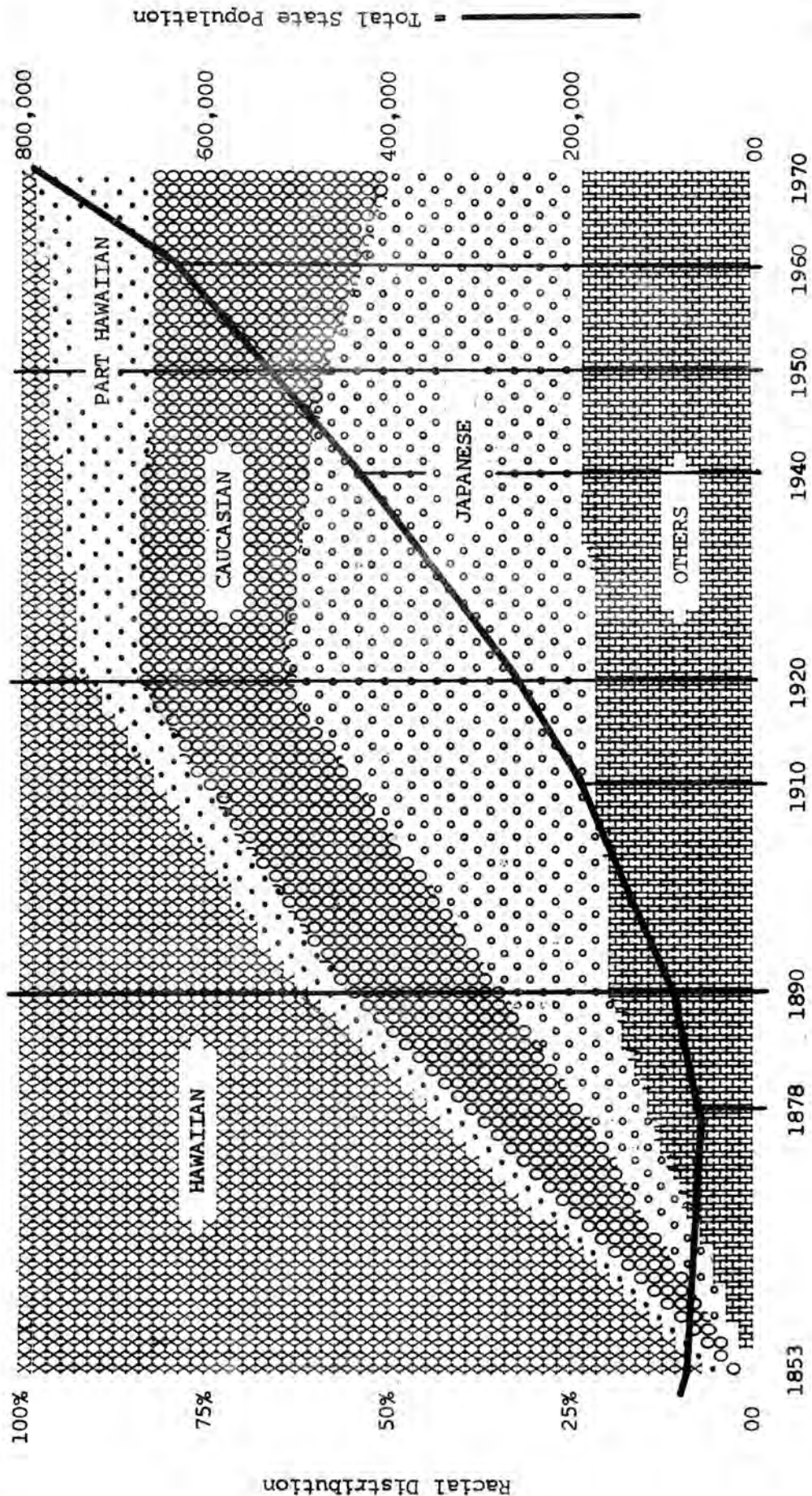
1.3 Human Resources

1.3.1 Hawaii's people. - Hawaii's population is distinguished by its diverse ethnic composition. It is often called a melting pot and considered a favourable example of harmonious interracial coexistence. These conditions do exist and are probably not exaggerated but the mixture elements have retained a considerable degree of individuality - no matter how intimate the degree of commingling. Racial pride is preserved together with interracial attitudes that can vary from a wary admiration to a degree of animosity. (section 2.4.2) Harmony is not achieved through the elimination of differences, as suggested by the analogy of the melting pot, but through a competitive balance of power with no single racial group in the majority.

The development of this mixture is shown on Figure 1.3.1.1. The native Polynesian population emigrated from the Marquesas Islands and later from the Society Islands at an unknown time although carbon 14 test have established a date of 124 A.D. for a site on the island of Hawaii. (HAWAII, DPED, 1968, p.14)

It was at Kealakekua on this island that Captain James Cook made the first Caucasian contact in 1778. Captain King, one of his officers, estimated that the native population at that time was 400,000 but "later writers have generally agreed on 300,000 as a more reasonable figure." This number was reduced during the late 18th century by infanticide and warfare and, later in the 19th century, by epidemics of diseases to which the native population had no immunity. Syphilis appears to have been a major cause of a sharp decline in the fertility of the Hawaiians. (HAWAII, DPED, 1967, pp.5, 6; 1971a, p.3)

FIGURE 1.3.1.1 Population growth in Hawaii and its distribution by race (SOURCE: HAWAII, DPED, 1972c, p.19)



By 1876 the total island population had been reduced to 53,900 approximately 80 percent of whom were Hawaiian or part-Hawaiian. It was in this latter half of the 19th century that the importation of indentured workers for the sugar industry brought about the most telling changes in the island population. The first workers were brought from China; they were soon followed by those from Portugal, Japan, and other countries. By 1890 the island population had grown to 90,000 but the Hawaiian and part-Hawaiian sector had been reduced to less than half of the total; the Caucasians had increased to 18,939 and the Japanese to 12,610. Not until the mid 1920's did the population again reach its 18th century total of 300,000. The Japanese had, by 1920, become the largest group with over 100,000 or 42.7 percent of the total; Caucasians had increased to 49,140, still only 19.2 percent of the total or less than one-half of the Japanese total. During this century the pure Hawaiian stock has been reduced to only about one percent of the total but the part-Hawaiian group had grown to 16.2 percent in 1970. The result is that the Hawaiians and part-Hawaiians taken together as a group have stabilized at about 27 percent. Another statistical source has concluded, from a review of published and unpublished statistics, that of approximately 130,000 persons of Hawaiian blood, "probably not more than a thousand could accurately claim unmixed ancestry. . ." (SCHMITT, 1967, pp.467-76) Since their peak in 1920, after the first world war, the Japanese have been reduced in proportion to 36 percent in 1950 and to 26.8 percent in 1970, while the Caucasian group has increased to 23 percent in 1950 and to 33 percent in 1970.

During this period the total of all other races has also stabilized at about 20 to 23 percent although its content has fluctuated; in 1970 it contained Chinese (3.9%), Filipino (7.9%), Korean (0.9%), Negro (0.8%), Puerto Rican (0.5%), Samoan (0.8%), mixed except Hawaiian (7.9%), and others (0.4%). (HAWAII, DPED, 1972c, p.19)

This, then, is the product of Hawaii's melting pot. While harmonious it is not homogenous. Racial differences are preserved in the homes with mixed marriages as well as in the community; they can be seen in the amicable propinquity of disparate religions, habits, manners, attitudes, morals, values, temperaments, characters, physiognomies, and physiques that give texture and zest to the broth.

An estimate of church membership in 1972, based on a survey by the Department of Religion at the University of Hawaii, indicated that of 542,000 church members 64 percent were Christian, 22 percent Buddhist, and 14 percent divided amongst Shinto, Jewish, Baha'i, and other minor movements, faiths or sects. Of the 347,700 Christians, 220,000 attended 69 Catholic churches; only 81,102 attended 354+ Protestant churches divided amongst 19 different sects; the rest were classified in 17 different groups. The 121,460 Buddhists were divided into 16 Societies, Assemblies, or Missions. The Shinto 43,500 attended five Temples, Shrines or Missions. (Ibid., pp.21-23)

While Hawaii has a mixed racial population and - as a tourist destination point at "the crossroad of the Pacific" - has always had a sizeable transient population, a majority of her population have always been native-born except for a brief period at the turn of the century, following annexation to the United States. At that time, in 1900, her native born population reached an historical low

of 38 percent; those born in the continental United States were at a stable 2 to 3 percent, while the foreign-born reached a high of nearly 60 percent. From this time until 1950, just after Hawaii became a State, her native-born steadily increased to over 70 percent, those born in the continental United States increased to 13 percent and her foreign born decreased to 15 percent. Since Statehood there has been an influx from the other States bringing their total to about 25 percent; the native born have decreased proportionally to 60 percent and the foreign-born have decreased to less than 10 percent. (Ibid., p.21)

Of some 61,000 registered aliens in 1972, over one-half were from the Philippines, 25 percent were Japanese, 4 percent Chinese, 3.5 percent Korean, 3.6 percent from the United Kingdom, 2.8 percent from Canada, 1.3 percent from Germany, and 8.3 from other countries. (Ibid.)

A tracing of the intrastate demographic movements reveals the interisland and rural-urban shift of figure 1.3.1.2. In 1831 Oahu had a population of 29,745 or only 23 percent of the 8-island total of 129,814 persons. In 1970 Oahu's population had grown to 630,528 or 82 percent of the State total of 769,913. This clearly indicates the degree to which Oahu has become urbanized and the other islands, while not becoming depopulated, have remained relatively static, retaining their rural character.

A clearer concept of this shift can be had by comparing the change in densities as expressed by the units of persons per square mile shown in table 1.3.1.1.

TABLE 1.3.1.1 Population densities by geographic areas in Hawaii.

	area (sq.mi.)	Population		Density (persons per sq.mi.)	
		1831	1970	1831	1970
State	6,450	129,814	769,914	20.13	119.37
Oahu	607.7	29,745	630,528	48.95	1,037.56
Maui	728.8	35,062	38,691	48.11	53.09
Kauai	553.3	10,947	29,524	19.78	53.36
Molokai	261.1	6,000	5,261	22.98	20.15
Lanai	139.5	1,200	2,204	8.60	15.80
Hawaii	4,038.0	45,700	63,468	11.32	15.72
Niihau	73.0	1,080	237	14.76	3.25
Kahoolawe	45.0	80	0	1.78	0

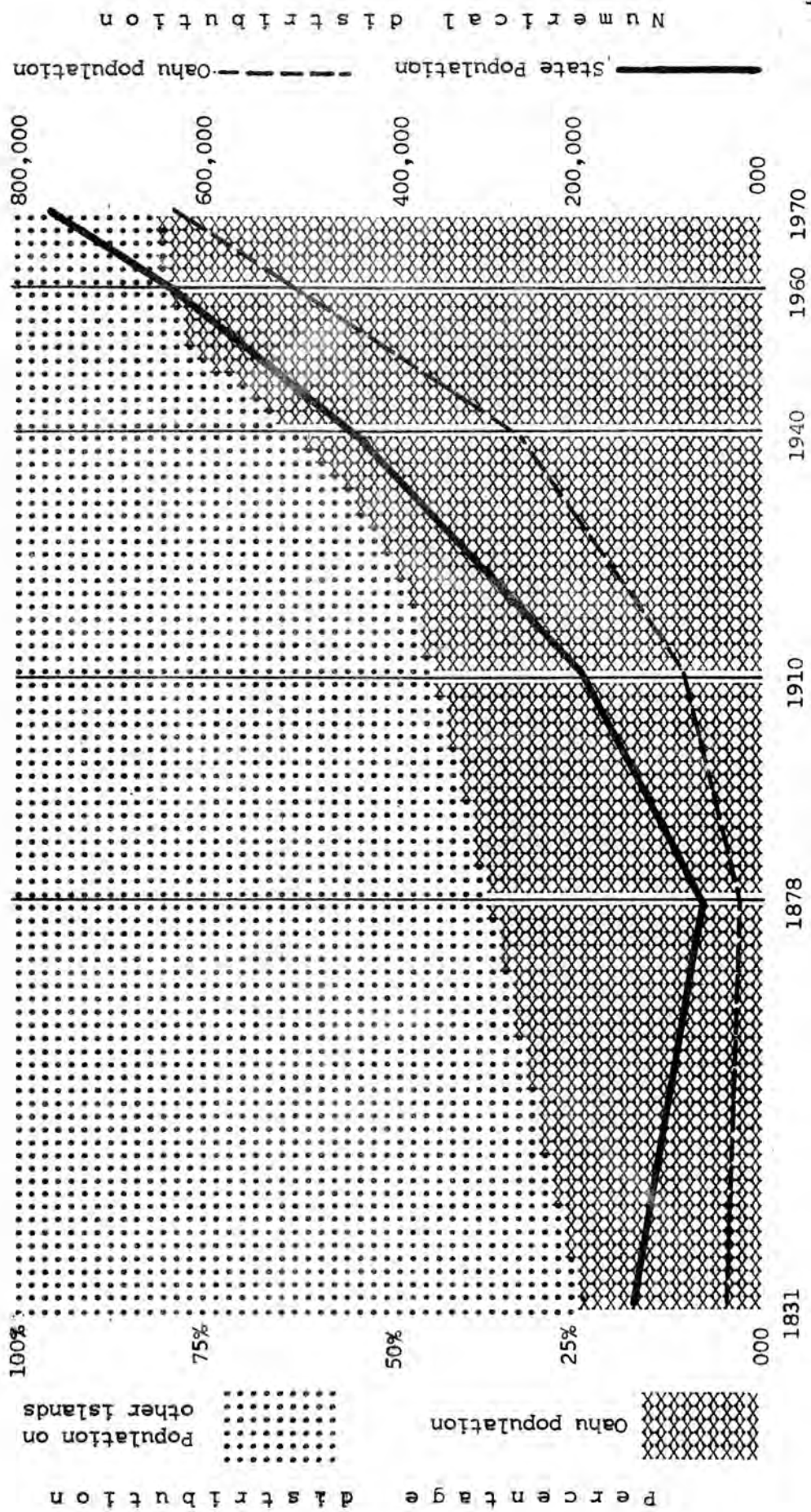
SOURCES: HAWAII, DPED, 1972c, p.7 (population), p.63 (areas)

Migration has been a major factor in this growth and it is obvious that the greater part of this has been to the island of Oahu. "Between 1960 and 1970, approximately 193,000 persons (excluding military personnel and their dependents) moved to the State, while 140,000 moved away. The in-migrants included 156,000 persons from the mainland and over 36,000 from foreign countries, chiefly the Philippines." (*Ibid.*, p.5)

In general these trends have continued but in 1972 the State noted (in estimates which were qualified as provisional and subject to revision) that, for the first time since 1890, the growth rate on Oahu was exceeded by that on the other islands. These growth rates

FIGURE 1.3.1.2 Distribution of population

SOURCE: HAWAII, DPED, 1972c, p.7



for the previous 27-month period since the decennial census of 1970 were 5.0 percent for the resident population and 6.6 percent for the de facto population of the State. On Oahu the resident population increased by 4.7 percent and on the other islands by 6.5 percent. The rate was highest on Maui (9%), followed by Hawaii (7.7%), and Kauai (3.6%). There were declines on Lanai (2.2%) and Molokai (6.8%). (HAWAII, DPED, 1973 X-5, p.6) A parallel trend toward a decentralization of hotels is noted on figure 1.3.1.3.

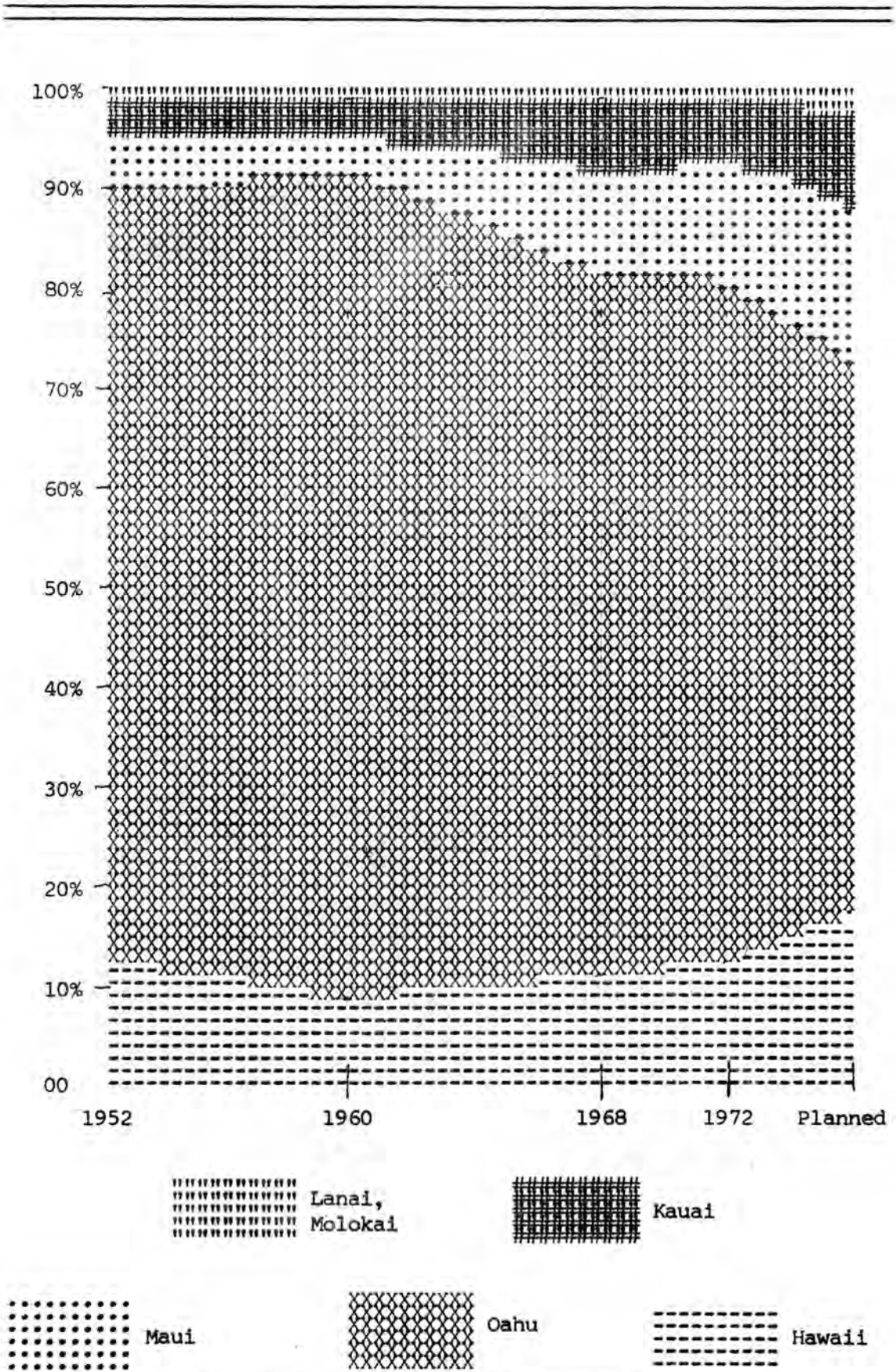
Military personnel and their dependents constitute a considerable demographic group whose numbers and movements are particularly variable and unpredictable. Estimates vary widely, and, in some cases, unexplainably (it is not always clear, for instance, whether personnel afloat are included on a home port basis), but it is believed that the figures quoted are sufficiently accurate to illustrate the conditions that are of interest in this study.

In 1941, prior to the entry of the U.S. into the Second World War, there were only 10 percent of Hawaii's population in the armed services. This increased to 23 percent in 1942 and, in 1944 reached a peak of over 400,000 or an estimated 47 percent of the State total population. In 1946, after the war, this declined to 12 percent and for the next twenty years it fluctuated between 6 and 11 percent. (HAWAII, DPED, 1967, p.29)

To this number of resident military personnel can be added their dependents who have been estimated to number between 1.0 and 1.3 dependents per member of the armed forces during the period from 1950 to 1970. This would suggest a military sector of the State population equal to between 12 percent (2 x 6%) and 25 percent (2.3 x 11%) of the total State population. Since military



FIGURE 1.3.1.3 Distribution of hotel rooms by geographic area:
1952 to 1972



(SOURCE: Hawaii, DPED, 1972c, p.114)

expenditures constitute Hawaii's largest source of income these fluctuations can assume critical importance. (HAWAII, DPED, 1967 part 4, pp.29, 41; HAWAII, DPED, 1972c, pp.124, 125)

In the employment study (section 3.3) it will be noted that two measureable characteristics of Hawaii's people are of particular importance: (1) their youth, and (2) their female labour force participation rate. Hawaii tends to hold its young people and to attract the youthful immigrant. The State's median age in 1970 was 25; the median female was 25.5 and the median male was 24.7. Only 5.7 percent of the population were 65 years of age or over. (HAWAII, DPED, 1972c, p.17) Figure 5.2.4.1 shows the bulge of the hotel employment profile in this youthful age group of 20 to 24 years that is perhaps an effect of this state age pattern and also, since it reaches well beyond the general industrial profile, may have a causal relationship in its attractions for the young worker who might otherwise go elsewhere for employment.

Figure 3.3.2.1 also indicates the bulge in the female profile between the ages of 35 and 54 years. This group would include many divorcees and married women whose children are beyond the need of personal care and more in need of the financial assistance that a working mother can provide.

The profiles of figure 3.3.2.1 are proportional; they do not compare the number of male and female employees (1.45 male worker per female worker) or indicate the second point mentioned above, i.e., the quantitative uniqueness of Hawaii's female labour force.

Hawaii has a higher female labour force participation rate (the percentage of any group who are in the labour force) than any other state in the nation. In 1970 nearly half of her civilian females aged 16 and over (more than 121,000 women) were employed or actively looking for work.

TABLE 1.3.1.2 Female labour force participation rates for different groups (as percentages of females in the group who are in the labour force).

	<u>1950</u>	<u>1960</u>	<u>1970</u>
Female civilians aged 16 and over:			
Hawaii	34.7	41.8	48.8
U. S. A.	27.0	35.0	41.0
Divorcees in Hawaii		67.9	68.9
Single women in Hawaii		52.3	56.3
Married women (husband present) with children under six years old:			
Hawaii		30.3	37.8
U. S. A.		19.2	28.2
Married women (husband present) with no children under six years old:			
Hawaii		48.0	52.9
U. S. A.		36.4	43.4
Married women with husband absent:			
Hawaii		35.0	47.2
Widowed women:			
Hawaii		26.3	27.5

(SOURCE: FIRST HAWAIIAN BANK, April 1973c)

Table 1.3.1.2 shows that the increases in Hawaii's female labour force participation rates are part of a national trend but it can be seen that Hawaii's overall rate is nearly ten years ahead of the national average. Of the groups observed divorcees have the

highest rate, followed by single women and, third highest, the married women who are living with their husbands but who have no children below the age of six years.

The greatest increase of any group was the 47 percent growth recorded by the national average of those women who are married and living with their husbands and who are caring for children below the age of six years. Participation by all married women increased more rapidly in the U.S. as a whole than in Hawaii where the higher rates of participation have existed for many years.

The interaction of a number of demographic, economic, and cultural factors have been seen as causes of - or influences on - Hawaii's lead among the states in female labour force participation:

1. Hawaii has a very high proportion of single adult women and a very low proportion of women 65 years or older.

2. Hawaii's industrial pattern of employment in service industries and nondurable goods manufacturing (tourism, sugar, and pineapple industries) with a low concentration in durable goods manufacturing tends, in accordance with national studies, to have a high female labour force participation rate.

3. Hawaii's high cost of living and low unemployment rate encourage the wife and daughter to join the labour force for a second source of family income.

4. Cultural and historical factors result in a higher female labour force participation rate among nonwhite sectors than among Caucasians.

Regardless of economic status, the woman whose mother or grandmother was an immigrant plantation labourer may be more inclined to work than the woman whose mother and grandmother stayed at home. The working wife or mother is much more a traditional and accepted part of Island life, and the tradition seems to be growing rather than declining with rising affluence. (FIRST HAWAIIAN BANK, April 1973c, p.1)

These are all statistically measureable aspects of Hawaii's people. A very real characteristic - and one of particular interest in a study that touches on the tourist industry - is her welcoming attitude known as the "aloha spirit", in an application of the Hawaiian word of greeting and farewell that implies a relationship of love and good will.

Hawaii has a well-earned reputation for welcoming the visitor with a genuine warmth. While not quantifiable this intangible - as is noted later (section 2.4.2) - is observable as an indicator and measure of an area's tourist saturation. The true spirit of aloha is not compatible with the spirit of commercial exploitation and is sensitive to abuse.

1.3.2 Political structure. - Hawaii is represented in the Federal legislature by two U.S. Senators (both male, one of Chinese ancestry and the other of Japanese) and two U.S. Congressmen (one male and the other female, both of Japanese ancestry).

Her State political structure is similar to that of the Federal Government in its separation of the legislative, judicial, and executive branches with the checks and balances of each.

The legislative branch also follows the Federal bicameral form with 25 senators elected for four-year terms, and 51 members of the House of Representatives serving two-year terms.

In the Federal judicial structure Hawaii is a part of the ninth circuit. State justice is administered by the State Supreme Court, five Circuit Courts, and 27 District Courts who handled almost 500,000 cases in 1971. (HAWAII, DPED, 1972c, p.46)

Executive powers are vested in the Governor and the Lieutenant Governor who are elected to four-year terms and who administer the affairs of government through a series of Departments and Agencies.

The third level of government is administered by the Counties: one combined City-County (Honolulu, consisting of the Island of Oahu and several outlying islets), three non-metropolitan Counties (Hawaii, Kauai, and Maui), and one area (Kalawao County) administered by the State Department of Health. Separate municipal governments do not exist.

Of the multiplicity of services provided by the Federal Government and the maze of departments and agencies through which the services are administered these are, in a very abbreviated form, most directly involved with the areas of planning that are the interest of this study.

1. The Department of the Interior administers its recreational program through four agencies:

- i. The Bureau of Outdoor Recreation, administer the Land and Water Conservation Fund with the major responsibility for coordination of federal activities in the area of outdoor recreation, and the provision of financial and technical aid to State and local governments and private organizations for outdoor recreation purposes.
- ii. The National Park Service administer and operate National Park areas (including Hawaii Volcanoes National Park, City of Refuge National Park, and Haleakala National Park) and provide technical assistance upon request to State and local agencies.

iii. The Geological Survey provides financial and technical assistance for the mapping and study of geological structure, topography, and mineral and water resources.

iv. The Bureau of Sport Fisheries and Wildlife administer the Federal Aid in Fish and Wildlife Restoration Acts which authorize grants in aid to States and Territories for restoration of fish and wildlife habitats. They also administer the 3,500-acre Hawaiian Islands National Wildlife Refuge between Kauai and Midway.

2. The Department of Agriculture contributes technical services and funds through:

i. The Soil Conservation Service manage the Small Watershed Program and share costs with state and local agencies for land, easement and right-of-way acquisitions.

ii. The Forestry Service is the primary Federal agency responsible for forestry research, wildlife habitat and multiple use; provide technical services and funds for development, protection, and management of public and private forest lands and resources for recreation, wildlife, and aesthetic values, as well as for watershed, timber and forage values.

3. The Department of Housing and Urban Development has several programs offering technical assistance and financial aid through such agencies as under the Urban Planning Assistance Program, the Urban Beautification and Improvement Program, the Open Space Program, the Demonstration Cities Program, and the Metropolitan Development Program.

4. The Department of Defense control 252,000 acres. Military installations on Oahu cover approximately 1/3 of the land area and extend not only to the high-water line, as other properties do, but includes the beach and submerged lands as well. (HAWAII, DPED, 1971a, p.16) Military expenditures constitute the major source of State income. The importance of this department to the State is obvious. Through the Corps of Engineers aid is given and control is exercised over all navigable waters. As a public works agency they are authorized to undertake projects to improve navigation and flood control.

The State services of most immediate interest are administered by these agencies:

1. The Department of Land and Natural Resources are responsible for programs such as administered by:
 - i. The Division of State Parks is responsible for planning, development, and operation of State Parks, as well as administration of programs for the effective use and protection of recreational and historical sites and resources on State public lands.
 - ii. The Division of Fish and Game manage all public hunting; improve fresh water and inshore fishing opportunities, and study the potential introduction of new fish and game to improve the opportunities.
 - iii. The Division of Forestry is responsible for the protection of forest resources from fire, insects, and disease; and develop better forests and accesses and facilities under a principle of multi-use management.

- iv. The Division of Water and Land Development is responsible for the formulation of long-range, comprehensive water plans.
2. The Department of Transportation provides facilities such as boat harbour, soaring fields, scenic highways and roadside parks, and also the transportation network for gaining access to recreation areas. These programs are administered by:
- i. The Airports Division who administer, operate and maintain the State's commercial and general aviation airports.
 - ii. The Harbors Division who manage all harbours, piers, and related facilities and services owned or controlled by the State; construct boating facilities; regulate and enforce State laws and rules pertaining to water-oriented activities.
 - iii. The Division of Highways who construct and maintain State scenic roads and parkways, wayside overlooks and viewpoints.
3. The Department of Planning and Economic Development is charged with the development and coordination of the State General Plan, including the preparation of the Comprehensive Outdoor Recreation Plan. (HAWAII, DPED, 1968, pp.158-177)

1.3.3 Economy. - Hawaii's people enjoy the benefits of a richly endowed community but their economy is limited or directed by two general constraints: (1) Hawaii lacks a broad and varied supply of natural resources, and (2) Hawaii suffers under a competitive handicap of inordinately high import and export costs as compared with those of the other states that have continental positions and contiguous relationships. (section 1.2)

As a result of these conditions an abnormally high proportion of Hawaii's income is dissipated or lost from the area through imports (see Appendix A). Most of the requirements for manufacturing products and substantial portions of Hawaii's foodstuffs and raw materials must be imported.

Figure 1.3.3.1 compares the distribution of employment in Hawaii with the distribution of employment in the United States as a whole. It can be seen that Hawaii's manufacturing sector occupies a relatively unimportant place while trade, services, and construction are unusually prominent. Table 1.3.3.1 shows that, in the trend from 1960-1971, these differences are increasing and the pattern is becoming more distinct.

TABLE 1.3.3.1 Distribution of civilian employment on Oahu: 1960-1971.

	<u>1960</u>	<u>1971</u>
Agriculture	4.3%	2.2%
Manufacturing	13.8	9.4
Services	21.1	26.5
Trade	30.3	31.7
Finance, Ins., Real Estate	7.1	9.1
Transportation, Comm., Utilities	10.2	10.7
Construction	13.2	10.4
	100.0%	100.0%

SOURCE: FIRST HAWAIIAN BANK, 1972a, p.38)

FIGURE 1.3.3.1 Distribution of employment in the private sector for Hawaii and the United States: 1964

(SOURCE: ARTLE and RIDER, 1966)

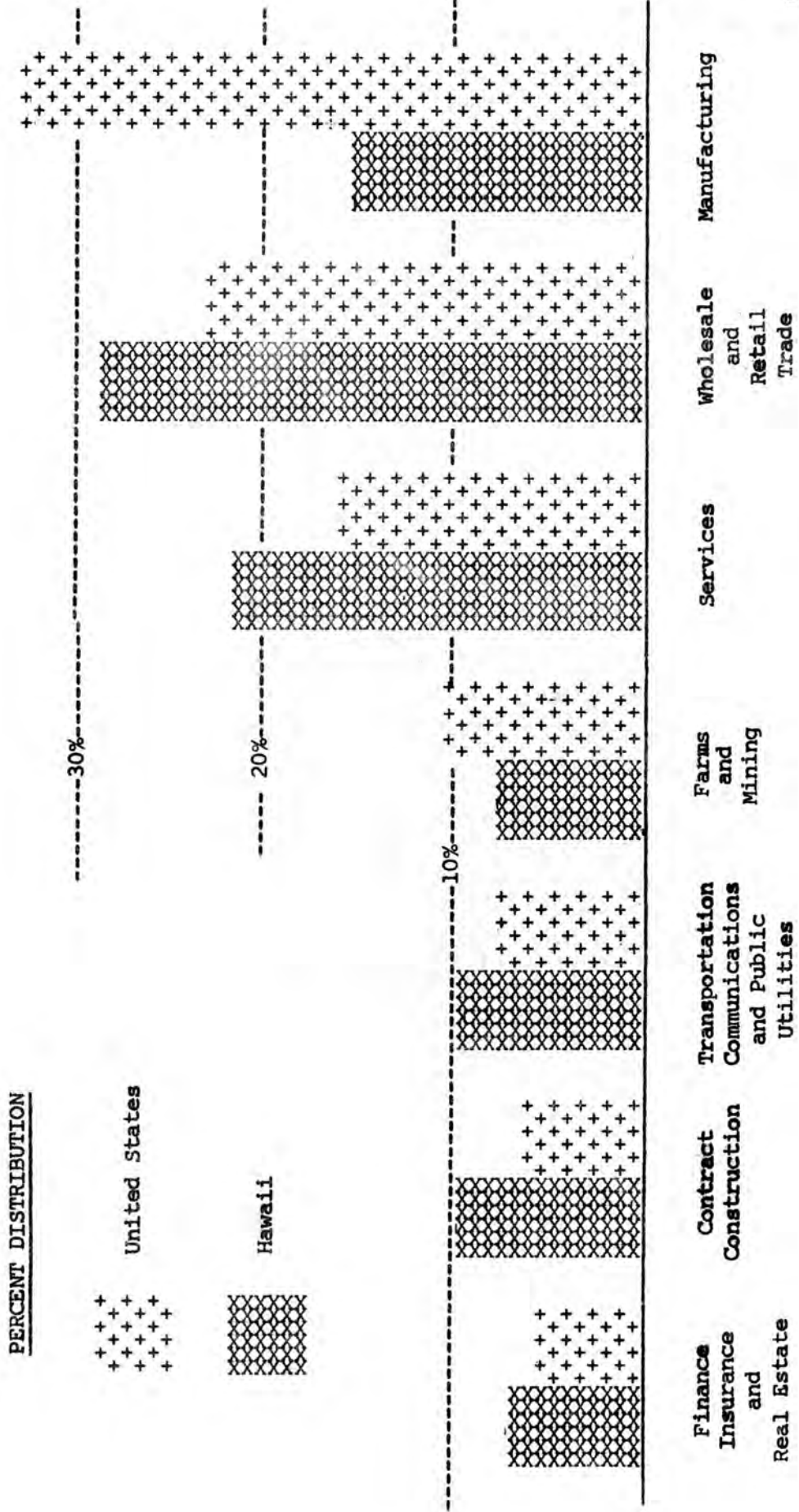


Figure 1.3.3.2 presents a diagrammatic concept of Hawaii's total income and employment factors with their lines of influence and aggregation as related by CHAU (1970) in his econometric model for forecasting income and employment in Hawaii.

Income and employment in Hawaii originate from three well-defined sectors: export, domestic, and government. . . The export sector is made up primarily of visitor expenditures and exports of sugar and pineapple. They contribute directly to employment and profits of firms in this sector. Tourist expenditures also spill over to retail establishments of the domestic sector. The public sector of Hawaii is swelled by sizable defense-oriented federal expenditures. Military payroll, however, is not included in our model since a very small portion of this is spent locally. (p.16)

This discounting of military expenditures is credited to the practice of purchasing through military retail outlets that import directly from the mainland, and from the remittances of earnings to dependents who reside out of state. (YAN-LI WU, 1965) This opinion is not shared by HITCH (1972) who estimates that 79 percent of military expenditures are retained in the region (table A.5/c).

Activities of the domestic sector are defined as commercial construction, residential construction, and retail sales. Activities of the public sector include government civilian employees, construction, and goods and services purchased by defense expenditures and government agencies.

Activities in both the export and public sectors are considered exogenous. The growth of the domestic sector, however, relies heavily on expansions in other sectors. Since Hawaii imports most of its consumer goods and all of its investment goods, resources for growth have to come from earnings of the export sector or capital inflows attracted by prospects of such earnings. (CHAU, 1970, p.18)

While the construction and application of mathematical models is not within the purview of this study this example, it is believed, is helpful in listing and relating the many factors in a comprehensive form.

FIGURE 1.3.3.2 Flow chart of a model for forecasting income and employment in Hawaii (rearrangement of a statement by CHAU, 1970, p.17)

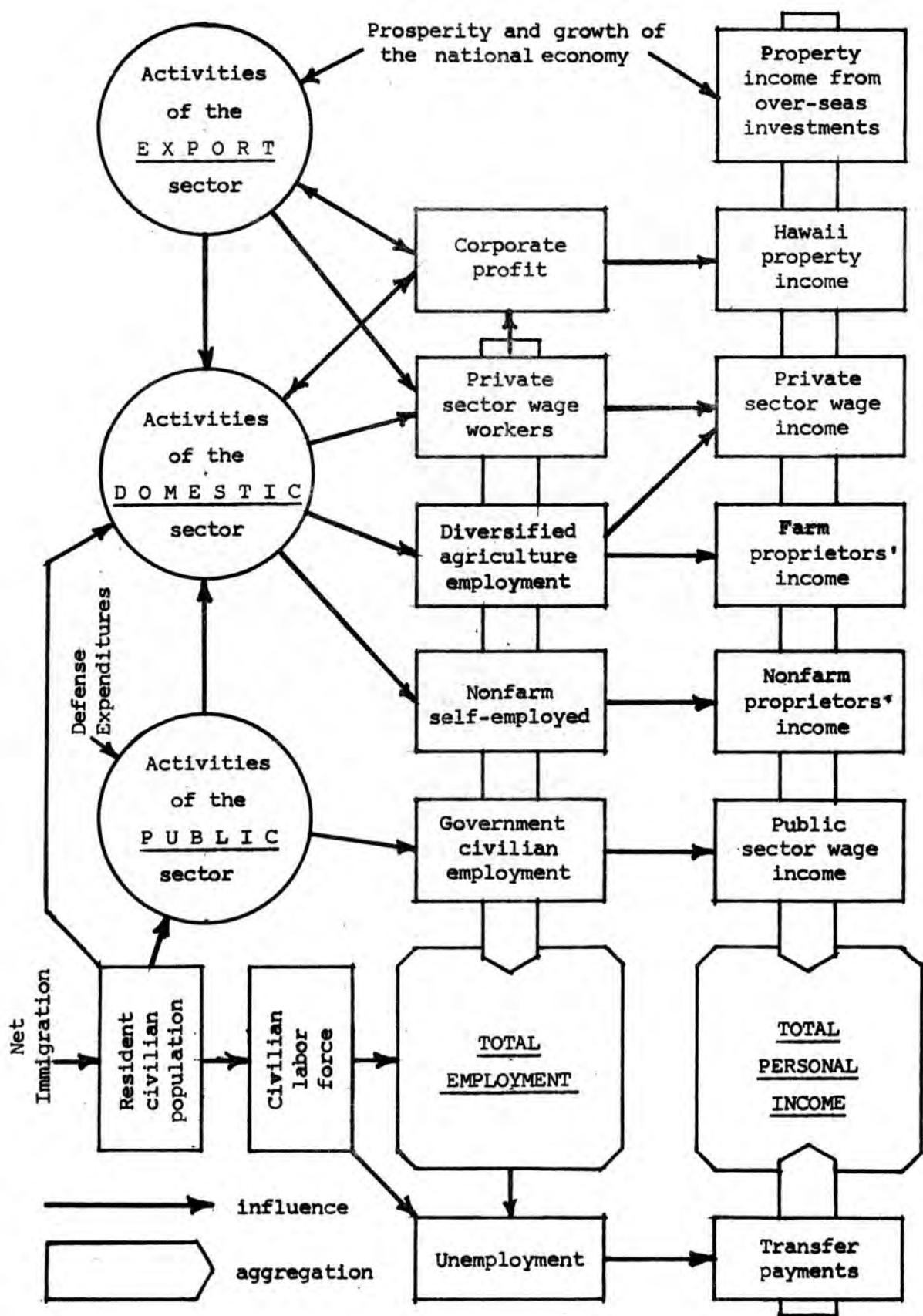


Figure 1.3.3.3 demonstrates the disposition and the change in this disposition over a ten year period of the employment of both men and women in the different sectors of the Hawaiian economy. The most dramatic aspect of this comparison is the extreme growth in the hotel sector of 197 percent increase in male employment and 257 percent increase in female employment. In the total state employment the increase in female employment is twice that of the male employment - 55 percent as against 24 percent. In the public utility sector the growth in female employment is 90 percent against only 23 percent in male employment.

These growth records compare with the decreases in employment of 25 percent in agricultural male employment and 27 percent decrease in male employment in the manufacturing of nondurable goods.

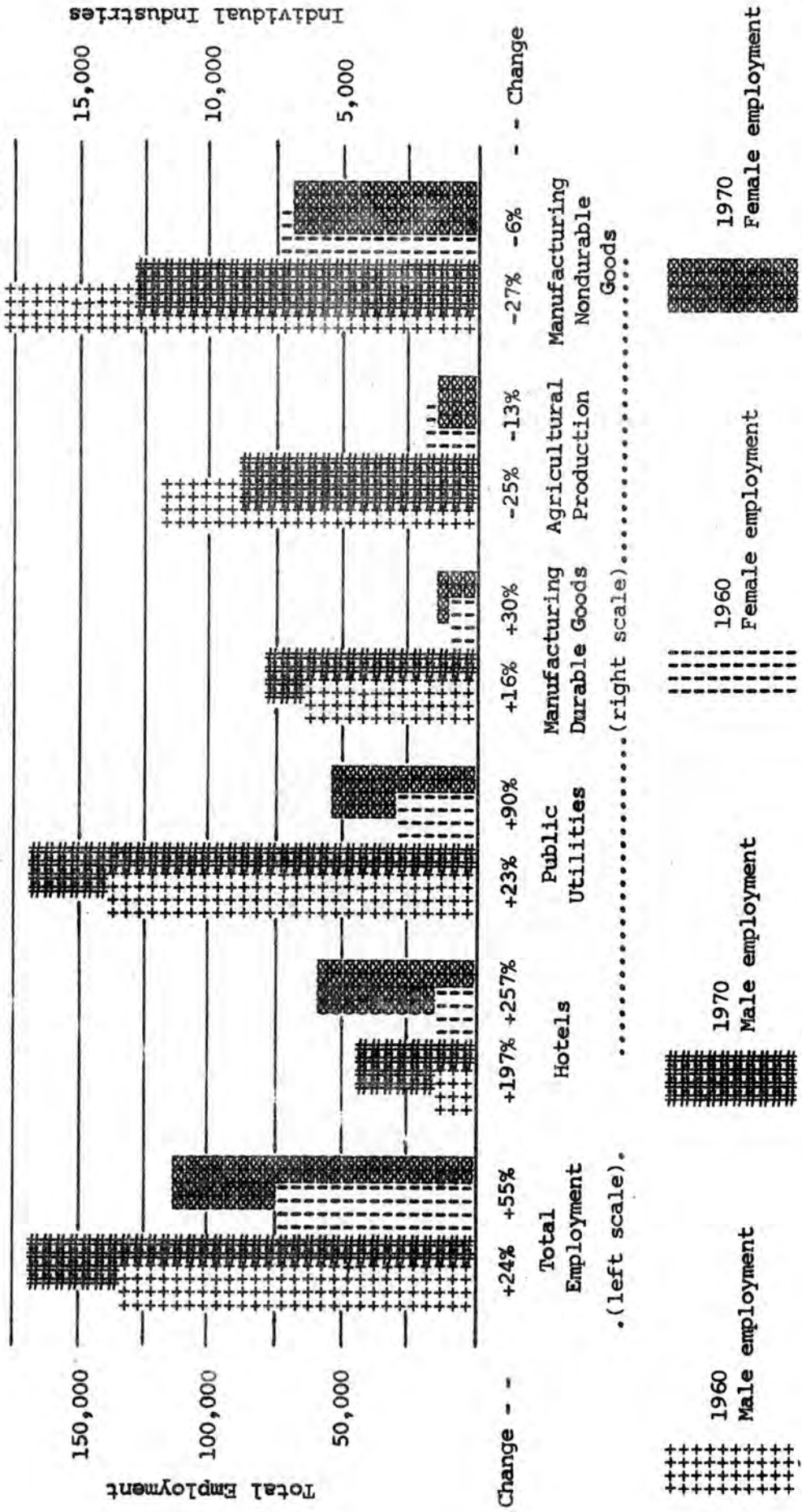
These records and trends are in agreement with the findings of sections 1.3.1. and 3.3.1 wherein the increasing trend to female employment is noted and its implications for the hotel industry are considered.

Table A.5 presents estimates of the total personal income effect of the four major industrial sources that together amount to over 50 percent of the total state personal income. Defense expenditure, it can be seen, is in a strong first place although during the 10-year period it decreased in proportion from 32.3 percent of the total to 25.3 percent. Visitor expenditures were the only group to improve their standing - going from 8.2 percent to 15.7 percent.

Both sugar (going from 9.9 percent to 6.4 percent) and pineapple revenues (going from 7.3 percent to 3.2 percent) reduced their relative positions. The latest assessments of the sugar industry

FIGURE 1.3.3.3 Disposition by sex of industrially employed persons in Hawaii for the years 1960 and 1970

(SOURCE: U.S. BUREAU OF THE CENSUS, 1972, pp.382-84)



(FIRST HAWAIIAN BANK, 1973a) indicate an expectation that it will hold, if not improve, its relative position. Hawaii's plantations have always held leading position in the development of their industry. They are continuing aggressively in the production of new methods of irrigation, harvesting, treatment, transportation, marketing, and in labour relations. The less efficient lands have been reduced and the more productive have been consolidated.

Pineapple production, on the other hand, appears to be on the way out as a major industry.

In 1973 the pineapple industry took further steps in the curtailment of operations after 70 years of major contributions to the Hawaiian economy. A steadily deteriorating competitive position over the years in relation to foreign packed pineapple and domestic fruit forced some of the growers either to close down completely or shift some production to foreign countries. (FIRST HAWAIIAN BANK, 1973a, p.10)

Hawaii no longer has an available supply of low-cost labour to compete with the developing countries. The present expectation is that production will continue on the island of Lanai for the processing of fruit and that acreage will be retained on Oahu for the shipping of fresh fruit; other areas will be phased out.

(Ibid., p.11)

Diversified agriculture, it is hoped, will take the place of pineapples and sugar on some of the vacated land. Livestock, chicken and eggs, pigs, flowers, papayas, macadamia nuts, seed corn, vegetables and melons, guava and passion fruit, and new forage crops are some of the potentially profitable lines that are being tested and encouraged by the state government. (Ibid., pp.13,14)

"Agricultural parks" are being tested for reduced costs to the small farmer through the use of common facilities such as roads and water systems. (Ibid., p.14)

Tourism continues to be the leading growth industry, as discussed in the following section.

Not all of the leisure developments planned for each of the islands will bloom overnight, which is good for the economy. But with millions of dollars invested in land, it would appear that the future of the state is in the leisure industry. (Ibid., p.23)

2. THE CHARACTERISTICS OF TOURISM IN HAWAII

2.1 The Benefits of Tourism

2.1.1 Personal income

2.1.2 Public income

2.1.3 Employment

2.2 The Costs of Tourism

2.2.1 Public costs

2.2.2 Private costs

2.3 The Tourist

2.3.1 Classifications

2.3.2 Activities

2.4 Regional Capacity for Tourism

2.4.1 Environmental capacity

2.4.2 Social capacity

2.4.3 Controls

2. THE CHARACTERISTICS OF TOURISM IN HAWAII

A community's aims and objectives influence its attitudes toward an industry, and these attitudes determine community policy, i.e., the degree of restrictive control or of encouragement to be exercised. Aims and objectives establish the values by which the costs and benefits of an industry can be assessed. These become of particular interest in balancing clearly measurable economic factors against social and ecological considerations whose values are discretionary. How does one measure the end product of tourism? What is the "value" added by tourism? These may seem theoretical considerations and they would undoubtedly be treated in different ways in different economic systems with different aims and objectives, but they point up the difficulties encountered in evaluating the industry and comparing it with other industries that may be competing for an economic and equitable distribution of limited resources.

An evaluation of tourism involves a great many intangibles and this complication is compounded by the fact that its tangible factors are so scattered through the community that their measurement cannot be positive. Tourism is not a clearly distinguishable industry with a firm and compact corporate structure. There can be no quarterly statements for the industry as a whole: no clear accounting of debits, credits, and net income per share. Tourism is a loosely knit, ill defined and poorly articulated industry that reaches out through the community touching virtually all of its interests. The activities of the tourist may parallel those of the

resident to a considerable degree making it very difficult to isolate his effects on the community from the effects of the resident. Community facilities and services are used by both; revenues to pay for these will be paid by both in a complex pattern of direct and indirect payments.

Even though Hawaii has one of the most thoroughly documented economies in the U.S. and even though its tourist flow is one of the most carefully watched activities:

There is much divergence of opinion, interpretation of facts and policy recommendations. . . disagreement on such questions as the character and origin of the visitors, their destination within the state and related considerations. There is also some tendency for projections to mix together business aspirations, avowed state policy and actual experience. (CRAIG, p.1)

It is difficult to disentangle such a mix as this but it is even more difficult to distinguish value judgments from established and documented facts; for an assessment of this industry must include value judgments - not only in the interpretation of data but in its selection, preparation, and presentation. Factual indices that are commonly available for other industries may, for tourism, be based on value judgments and unconfirmed assumptions. It is small wonder that tourism's studies are interspersed with such qualifications as:

This account presents primarily a schematic analysis of the impact of visitors on Hawaii's income. The numerical answers developed in the tourism area of the study are illustrative of what the relationships are between tourist expenditures and income to the state, rather than conclusive in establishing absolute values. (FIRST NATIONAL BANK OF HAWAII, c.1963)

An effective and accepted way of analyzing an industry - particularly as a guide for the determination of policy - is to assess either its balance as a source of supply and demand, or to outline, as in this section, its evident costs and benefits to the community. The discussion will follow the latter form in, of necessity, general terms; attempting to avoid the belabouring of aspects that are covered in other reports, and dwelling more on the phases that seem of particular interest regarding the industry of tourism and the manner of its analysis in Hawaii - guided by a primary concern for development planning and a respect for the breadth of the planner's interests.

2.1 The Benefits of Tourism in Hawaii

The effects of tangible, intangible, measurable, or unmeasurable costs and benefits are felt by the community in both its private and public sectors. The measurable benefits that form the basis for most economic studies are primarily in the fields of income and employment. In this section income is viewed as it accrues to the private and public sectors; employment is considered for its effects on the total community - in broad, general terms here, and more specifically in sections three and four which present the survey findings.

2.1.1 Personal income. - A review of the literature of planning (e.g., CHU, 1965; GHALI, 1970; HITCH, 1972b; ARCHER, 1973; UNCTAD 1973) reveals substantial agreement on certain principles governing the estimation of personal income created by the introduction of capital into the economy of a community. It is generally understood that such new capital moves through the community, changing hands in a series of purchases and at each exchange contributing income to a resident of the community. During its passage the original capital is reduced by the portion that leaves the community for the purchase of imported goods and services. The portion that remains is re-spent, continuing to increase the effective income of the community until through losses for imports it becomes inconsequential.

The relationship between the original amount of capital entering the community and the cumulative total of income generated by this capital can be estimated and expressed as a factor commonly called the income multiplier. "Ever since John Maynard Keynes

explained to the world in general and to Franklin Delano Roosevelt in particular that government fiscal policy could influence the national level of economic activity, economists have been interested in the 'multiplier effect' of an injection of new purchasing power in the community." (HITCH, 1972b, p.16) The phrase, unfortunately, has had wide appeal and acceptance without a matching agreement on a consistent use of terminology and technology.

Sometimes the expression is used to refer to the number of transactions made before the effects of successive rounds of expenditure are exhausted; sometimes it is used to refer to the ultimate effect on "income", "turnover", and "economic activity", without it being made explicit whether this is understood to mean national income or some other concept. A further source of confusion is that sometimes the coefficient cited related the final impact not to the initial injection of income arising from expenditure on domestically produced goods and services but to the total value of visitor expenditure as measured by gross receipts of foreign exchange, without the prior deduction of income which is lost to the economy through direct and indirect imports. (UNCTAD, 1973, p.20)

While this statement defines in a brief and negative way certain aspects of the problem it is clear from the scope and frequency of the differences, the breadth of the misunderstandings that they cause, and the importance of the issues involved that a more explicit statement is warranted. Explanations of specific factors and principles are offered but it is in the total concept - the chain and structure of relationships and their application - that clarification seems most needed.

Certain Hawaiian economists have treated this subject with rather unusual respect (HITCH, 1972b; FIRST NATIONAL BANK OF HAWAII, 1963); more than usual attention has been addressed to an explanation of their methods and assumptions. Appendix A presents a digest, in outline form, of this process as its application has

been observed and as its elements and structure are accepted in this study.

This presentation ties up such loose ends as those mentioned in the above United Nations report (UNCTAD, 1973, pp.19, 20). Table A.5 clearly demonstrates the degree of error that can be introduced by comparing, for instance, a calculation in which the multiplier is applied to gross industrial expenditures or receipts (columns a and b) with a calculation in which the multiplier, as here, is applied to the moneys retained in the region after the initial losses due to import purchases (columns d and e).

These examples from table A.5 illustrate the difference that an industry's import propensity (figure A.1/f) can make in its benefits to a community. An industry whose expenditures are largely in wages to the community residents (as with the military sector's import propensity of only 21%) benefits the community in greater degree than a processing industry, such as with pineapples, wherein 47 percent of their expenditure leaves the community as payment for imported materials.

Such differences indicate (1) a justification for the economists' efforts to establish bases for rational and objective interindustrial comparisons, (2) the important place that personal income plays in such comparisons, and (3) the necessity for a commonly accepted usage of terminology and technology for significant comparisons.

2.1.2 Public income. - Public income from revenues due to the tourist's expenditures have a direct relationship to private income from these expenditures. In section 2.1.1 the manner in which the money from such a source circulates through the community is discussed. The amount by which the initial gain is increased is established as a factor termed the "multiplier". Public income is realized in a similar manner by (1) direct taxation of the initial expenditure, and (2) supplemental taxing of the subsequent exchanges of the money as it passes through the community in a series of purchases being reduced at each point by the taxes and by losses for imports until it becomes inconsequential.

Both the manner of taxing the tourist and the amount of the tax are actively argued; equity and expediency are issues. The resident, aware of the visitor's demands, may urge a direct and visible levy such as a room or airport tax. The economist warns, however, that "in taxation those who pay and those who appear to pay are rarely the same individuals." Some taxes apparently directly taxing the tourist, may be shifted invisibly but nevertheless substantially to the resident; other taxes may fall more heavily on the tourist although not explicitly levied on him. (MATHEMATICA, 1970b, pp.15-16).

Cost-benefit analyses of tourism in Hawaii by MATHEMATICA (1970 a and b) considered the state government benefits to be derived from these sources: gross income taxes paid by businesses serving tourists directly and indirectly, and the income taxes paid by employees in tourist-related jobs. The determination of what businesses and what employees are involved, and the

determination of their degree of involvement with the tourist on the primary expenditure and the subsequent circulation of his expenditure are value judgments.

These analyses concluded that the tourist does, indeed, pay his way but this is qualified with the statement that "it should be emphasized that the public costs and revenues from tourism are only part of the issues. Some may, for example, prefer to conclude that they are secondary to the prospective environmental consequences of the growing visitor influx."

(Ibid., p.15)

These cost-benefit ratios have been widely quoted (UNCTAD, 1973b; pp.21-22; DPED, 1972a; p.16) as indications of tourism's desirability or profitability; it does not seem that their limitations are always appreciated. The state ratios exclude all federal or county costs and benefits; the county ratios exclude all federal and state costs and benefits; neither set of ratios consider private costs and benefits or "the prospective environmental consequences." The ratios were prepared as policy guides for specifically limited sectors of the government and make no pretence of evaluating the overall balance of the industry. No attempt is made to aggregate the total of tourism's costs and benefits to the community.

Benefit-cost ratios whose benefits are determined by tax revenues cannot be considered as basic evaluations of an industry's worth. A statement that such a ratio is favourable or unfavourable indicates little more than that the tax revenues are adequate or inadequate. A prudent government might be

expected to adjust its tax policy to assure an adequate return on its expenditures. As noted in section 2.2.2 this will increase the private sector costs and it is probable that it is in this sector that the benefit cost ratio will determine the success or failure - the degree of desirability - of the tourist industry at any particular level of development in any particular community at any particular time.

2.1.3 Employment generated by tourism. - Tourism employment, a part of which is examined in detail in sections 3 and 4, is here viewed in a more general way at the macro scale. There is an obvious correlation between an industry's creation of regional employment and its creation of personal income or domestic product; they can be analyzed in the same way. Employment is created through the direct servicing of the tourist and "additional employment follows from the effects of the multiplier as well as from construction activity related to tourism." (UNCTAD, 1973, p.22) Accurate segregation and measurement of tourism employment is as difficult to accomplish as is the segregation and measurement of tourist expenditure. It is clear that the degree to which community services are shared by the resident and visitor can only be assessed on the basis of value judgments; even in the recording of hotels which are primarily tourist facilities there is little uniformity in measurement. (HAWAII COMMISSION ON MANPOWER AND FULL EMPLOYMENT, 1972, p.21) As seen in the survey of section 3, hotel employment may include only the servicing of the

rooms or it may cover a complete resort selection of facilities. An average figure covering the hotels in an area will represent a facility with no reality; in this average hotel there will be insufficient provision for the guests' wining and dining; some shops and recreational facilities will be included, but not enough. It is this problem that sections 3 and 4 explore.

It is commonly stated that tourism is a labour-intensive industry but rarely is the term defined or a calculation offered in explanation or support. Presumably the implication is that tourism absorbs more labour than a comparable unit of some other industry. The numerator is a unit of labour but is the denominator a unit of gross regional product, (MATHEMATICA, 1970a, p.I-20) the average profit or value added, (YOUNG, 1973, p.145) a unit of capital invested, (UNCTAD, 1973, p.22) or some other index?

An Anglesey study, without using the term "employment intensive", reached the conclusion that tourism spending in that area generated approximately the same income effect as an equivalent amount of general spending but during the season the employment created by tourist spending was more than twice that of general spending. (ARCHER, 1973, p.76)

Studies in Hawaii, comparing the amount of physical capital per employee, indicated that the hotel industry did not appear to be more labour-intensive than the sugar industry. (MIKLIUS, 1970, pp.12-15) UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT secretariat studies of tourism in Yugoslavia and Israel also concluded that, from the ratios of capital or assets per employee, "tourism is not a particularly labour-intensive activity". (UNCTAD, 1973, p.23) The meaning of these terms and their significance

will vary with the aims and objectives of the community. What is to be maximized: employment opportunity, income, or some qualitative social factor?

The design and application of planning and forecasting models for virtually all aspects of the economy is actively pursued in Hawaii. While these may, in mathematical terms, parallel statements made here and pose many of the same problems, this dissertation will not attempt to examine, correlate or compare them. It is recognized that in all the complementary fields involved in the planning effort there is a "serious need for improvements both at the theoretical and empirical levels". (GHALI, 1970, p.1) There is also a need for coordination and understanding.

These are quantitative evaluations. The number of employees and the amount of wages paid, however derived, are of interest in the estimating of governmental and personal income. Estimates of public and private sector costs, for the formulation of policy, however, require a more detailed knowledge of the employment offered by a specific industry to assess (1) the community capacity to provide the needed type of employment and - if it seems probable that immigrant labour will be required - (2) the type of worker who will be brought to the area and his probable demands on the services and facilities of the area.

Just what is the type of worker who would be attracted to and supported by the tourist industry? Experience and opinions vary but it seems the most commonly held view that "hotel employment is still one of the lower paying employment sectors. . ." (HAWAII, DPED, 1972b, p.41) "Hotel employment pays less. More

persons per household must work to earn incomes equivalent to other jobs. . ." In a shift from an agricultural economy to tourism, as being experienced in parts of Hawaii, it is found that the agricultural worker "is overqualified for tourist related work. . . . Tourist-related service industries generate household incomes lower than those of other major industrial sectors of the economy Tourism-related employment generates lower per employee income even though employment is in the 'carriage-trade' class tourism is a less attractive employment option than other sectors of the economy. . . . Further, tourism employees have lower incomes than other segments of the economy due to a shorter work week, seasonal variations, and perhaps lower hourly wage rates." (Ibid., pp.110-115)

Sir George YOUNG has noted, in consultative documents of the Greater London Council, the statement that "Employees in hotels are among London's lowest-paid workers, even taking into account payments in kind. . . . Staff turnover is very high in London hotels, further suggesting the present low status and unattractive nature of hotel work, which is characterised by relatively low proportion of managerial, skilled and semi-skilled jobs." (YOUNG, 1973, p.115)

Perhaps the largest employers in the tourist industry are the hotels, and a recent survey carried out by the Hotel and Catering Industrial Training Board confirms the traditional view of this industry as one with low pay, high turnover and poor prospects. (Ibid., p.145)

Figure 2.1.3.1 and table 2.1.3.1 seem to demonstrate a sound basis for these low opinions of hotel employment's position; it is undoubtedly at the bottom of the list as far as wages are concerned.

FIGURE 2.1.3.1 Percentile distribution of earnings by the male and female experienced labor force in Hawaii, 1969

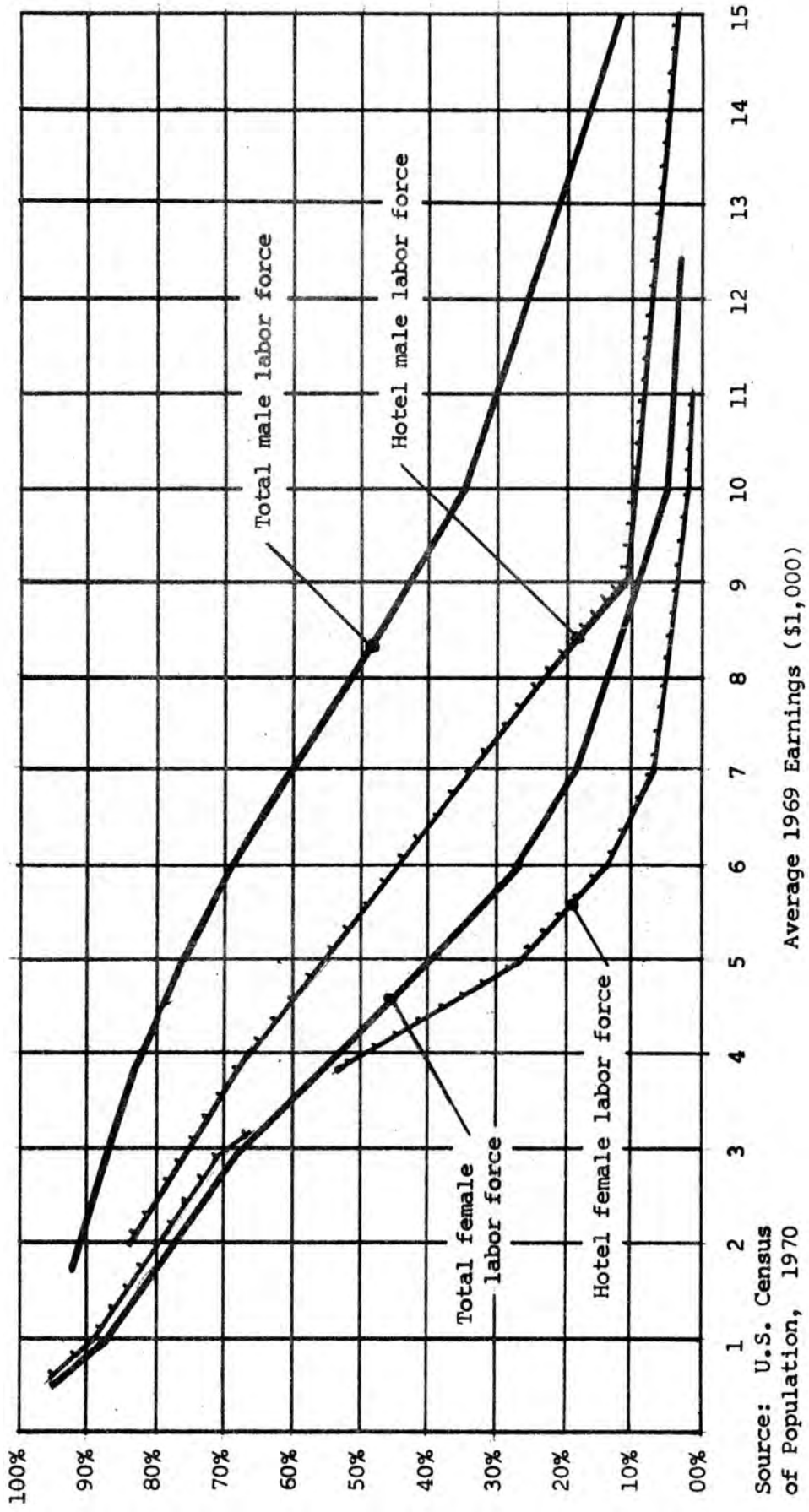


TABLE 2.1.3.1 Earnings by industry in Hawaii: December 1973

Industry	Average week (hours)	Average earnings (dollars)	
		hourly	weekly
Contract construction	37.1	7.02	260.44
Utilities, communication, and transportation	41.5	5.30	219.95
Manufacturing	40.5	4.29	173.75
Finance	-	-	122.01
Trade	33.4	3.45	115.23
Hotels	27.4	3.20	87.68

(SOURCE: FIRST HAWAIIAN BANK, Feb. 1974c)

It has been estimated (TOUCHE, ROSS, BAILEY, and SMART, 1969), however, that wages, in the form of an hourly base pay, constitute only about two-thirds of the total compensation in Hawaii; the remaining third is split about equally between tips and fringe benefits. Tips may be in the form of recorded credit tips or they may be cash tips which are difficult to assess. Fringe benefits that are unique to hotel employment include such items as meals, uniforms, and housing.

These are average figures. The survey of section 3 indicates that about 56 percent of the total employment is found in the departments that receive the bulk of tips: food service (29%), housekeeping (17%), beverage service (7%), and uniformed services (3%). This excludes a few such as entertainers and golf or swimming attendants in the miscellaneous category, and the few in the front office who might also receive tips. It should be noted that among those who do not receive tips are the higher paid employees in the kitchen and the maintenance staff. The amount of tipping is impossible to determine and is not part of this analysis. It is recognized - as confirmed by interviews with management - that the amount of tipping must be substantial since some of the service positions that receive modest wages are subject to competitive bidding and are obtained only by the payment of surprisingly large sums. While this is a matter for speculation it seems reasonable to assume that the most expensive hotels will be those with the highest rate of tipping; it also seems reasonable to suppose that this is a reason why, as it has been noted, the wage scale in the most expensive hotels is below that of the moderate and inexpensive hotels. (Ibid., p.16)

If the above noted factor of 17 percent for tips is applied to the hotel earnings of table 2.1.3.1 the hourly rate becomes \$3.74 which exceeds that of the Trade category. If the 33 percent factor, including tips and fringe benefits, is used the hourly figure becomes \$4.26 which approximates the average earnings of the manufacturing group.

The HAWAII COMMISSION ON MANPOWER AND FULL EMPLOYMENT (1972, p.16) indicated approval of these ratios for tips and, by applying them to the hotel earnings, reached the conclusion that "hotel industry employee earnings are in line with the earnings of sugar workers. Hotels are not a unique substandard paying industry." Such a comparison with the sugar industry should not be considered a disparagement as such a comparison might be in other areas. Hawaii pays the highest agricultural wages in the world.

CRAIG (1973, p.74) quotes an early but probably still valid study that found "30 percent of hotel jobs to be in the categories of professional, managerial, clerical or skilled. Among the employees were accountants, credit managers, interior decorators, stenographers, electricians, plumbers, carpenters, printers and gardeners." The breadth of this inclusion will vary - as has been noted elsewhere - and will affect the related ratios (section 3.2.1).

A more detailed consideration of other facets of hotel employment is covered in sections 3, 4, and 5. A "lack of data or faulty data have led to misconceptions and misplaced concerns about the nature of wages and hours in the visitor industry." (HAWAII, CMFE, 1972, p.20) There is a very real difference between the attractiveness of this employment in a crowded urban area, where the guest may be a busy, harried person, and employment in a resort hotel where the atmosphere is more relaxed; the master-servant relationship is on a different plane, and the employee may be in this place and this employment by his own choice and not of necessity. Specific and notable shifts in this direction are observed in section 3.5.

A need has been noted to "recognize the distinction between service and servility" (HAWAII, CMFE, 1972, p.34). It is felt that "advanced training and assurances of dignity to holders of humble jobs are important. . .Potentially demeaning job titles, such as busboy and bellboy, should be upgraded to a mature connotation, with appropriate vestibule training programs at entry level even though on-the-job training programs may have sufficed in the past." (HVB, 1967)

It has been found that "traditionally, many jobs in the service industry have utilized on-the-job training and the career ladder approach to training and upgrading new employees." (HAWAII, CMFE, 1972, p.32) Employment estimates and projections have not always recognized "the capacity of the hotel industry to provide for the local untrained employed who might otherwise be forced by lack of transportation and opportunity to remain out of the labour force and subsequently swell the ranks of the unemployed and welfare." (Ibid) Since the size and nature of this available labour pool may be unregistered it makes the preparation of helpful estimates most difficult.

A study of the applicant and hiring profile of the people that resulted from the opening of three hotels in 1969-70 is very revealing. These hotels, opening during the period of the supposedly tight labor market, had 2,329 applicants for the 477 jobs which were eventually filled. One of the hotels, being located in a rural area, filled its positions with 81 percent local people. Most of these local hires turned out not to have finished high school, and to have been unemployed and without previous training. It also turned out that even the hotels in Waikiki filled their jobs with a majority of local untrained unemployment. (Ibid)

This study does not attempt to delve into the problems of measuring or analyzing the non-basic or supplementary sectors of the community who serve both the tourist and the hotel employee. The most generally accepted ratio of 0.7 non-basic workers per hotel employee (HAWAII, DFED, 1972b, p.38) is applied in section 5.2.2 although it is not confirmed by this study.

While not questioned there are certain aspects of the support worker ratio that should be noted. The hotel industry is peculiar and distinct in many respects. Each hotel has its own practices. Some hotels feed and house their employees; laundry service, uniforms, etc. may be furnished. Different perquisites may be furnished to different departments within the same hotel. A rural hotel without supporting community services might be expected to furnish more in-house services than would an urban hotel.

It seems obvious that these variations would affect employee calculations. A basic employment ratio would vary directly with an increase of in-house services and the non-basic ratio would vary in an inverse ratio. From the standpoint of the community, the total of basic and non-basic employment would, in principle, be fairly constant except for an initial tendency of non-basic or support services to lag behind the development of basic services.

The location of Neighbor Island resort regions in rural areas with little population makes it almost impossible for these resorts to achieve the scale of operations and economies of agglomeration or acquire the urban infrastructure needed for the development of a wide range of tourist-related businesses - nightclubs, retail shops, and special services - at least at the present time. The population of visitors and local residents in the resort area is not large enough for the support of such operations. Visitors and employment must reach a "critical mass" to permit the development of retail businesses and non-basic services in the resort areas which will maximize the economic benefits of tourism. (Ibid., p.22)

While this tendency of the rural community to import its services from the urban centres can cause a development lag in the non-basic sector, it also seems plausible to expect a degree of leverage that could accelerate the rate of growth when the critical mass - sufficient to support local services - has been accumulated and a threshold has been reached. A hotel that raised this mass beyond the critical point or threshold would have a marginal effect far beyond the assumed average - creating an apparent demand for infrastructure and services entirely out of keeping with its benefits to the community. The improved infrastructure and services benefit the entire community, however, and the average cost would, therefore, seem more pertinent than the marginal cost.

The relationship between tourism's employment demand and the community's labour supply may set a growth limit with the aspects of a very critical threshold. Studies developing public sector benefit-cost ratios for tourism in Hawaii (MATHEMATICA, 1970a and 1970b) have concluded that the ratios are favourable and that the tourist more than repays the government's money expended in his behalf. The conclusions show, however, that "the benefit-cost ratio for a visitor falls off sharply as the proportion of immigrants in the labour force needed to serve additional visitors grows." (p.3)

If these conclusions are valid for the total community, as well as the public sector, there is a threshold beyond which

tourism's employment demand ceases to be a benefit to the community and becomes an exploitation of it. If this is true an assessment of the threshold level becomes of critical importance. (HAWAII, DPED, 1972a, pp.84,85)

In calculating and applying the above ratios the analysts, being hampered by a lack of data, were forced to resort to a good many assumptions - particularly in the all-important area of the employee and his family (MATHEMATICA, 1970b, p.34). These weaknesses become evident in the following review of costs, and it is to the filling of such voids that the research of section 3 is directed.

2.2 The Costs of Tourism

The costs of tourism are born by the community as a whole but may be considered as responsibilities of either the public or the private sectors, i.e., by the government representing the community, or by the individual members of the community or their agents. These costs may be measurable economic costs or they may be social, environmental costs that are not generally subject to measurement. When viewed at the macro scale - as national or regional phenomena - the concerns of tourism are usually those of the public sector and the problems are stated in economic terms. Social and environmental costs, while effective in determining policy, are observed more at the local level.

2.2.1 Public costs of tourism. - Public costs of tourism may be defined as the increase in government expenditures necessary to accommodate the rising visitor volume without a deterioration in quality of public services. These costs can be said to include:

1. Services rendered directly to the visitor for
 - a. capital improvements: infrastructure, parks, roads, airports, seaports, information centres, etc.
 - b. service costs: police and fire protection, waste disposal, public health and welfare, etc.
2. Services for the labour force serving the visitor.
 - a. the employees: vocational training, public transport, etc.
 - b. the dependants of the employees: a full range of community services such as education, housing assistance, etc. plus all services as under item 1.

3. Services to the secondary employment not directly serving the visitor but serving the employees and families of those who are so employed. This is the non-basic sector under the economic base theory. (PFOUTS, 1970) Its numbers are usually estimated and considered subject to the principles of the "multiplier". Its demands are, as for the employees under item 2, the same as for a general population increase.

Although not usually credited to this account there are also very real costs for administration: planning, promotion, marketing, control, regulation, etc. Substantial costs are involved in the gathering of data, their correlation, analysis, and the publication of such reports as those that form a substantial part of the reference material incorporated herein. Such material is essential as a guide for rational decision and action by both private and public agencies; its quality and comprehensiveness is an indication of a region's political and administrative maturity.

The more deeply a planning agency delves into such matters the more evident becomes the need for pertinent and precise data. The worth of estimates such as for these public costs is limited by the availability of information. Total government costs can be determined with reasonable accuracy from such sources as budget and tax statements. To determine the degree to which a particular industry or sector is responsible for such costs is more difficult. General assumptions must be accepted. Highway costs per visitor per day, for instance, have been assumed to be the same as the average governmental highway cost per resident per day. (MATHEMATICA, 1970b, p.6; HAWAII, DPED, 1972b, p.24). Similar costs are assumed equal to the

average cost per resident plus visitor, i.e., the total costs divided by the de facto population divided by 365. This has been assumed to be a reasonable approximation of the marginal costs of serving an additional visitor.

An appraisal of the costs under item 2, above (services for the labour force serving the visitor), has little precedent to guide it - other than confirmation of the lack of data and assurances that rough estimates, being the order of the day, must be expected and will be in good company. There is no agreement on the breadth of coverage by hotel employment (e.g., are laundry workers or tour conductors hotel-employed?). Even so, some responsible studies have been forced to the "use of hotel employment as a proxy for all visitor employment" on the assumption that this "should not seriously compromise the usefulness of results." (MATHEMATICA, 1970a, p.III-16) Since data regarding the actual number of households and the number of persons per household in hotel employment has been nonexistent, analysts have been forced to use community-wide averages although these may admittedly be wide of the mark. (HAWAII, DPED, 1972b; MATHEMATICA, 1970a, p.III-17, and 1970b, p.34) As reviewed in the latter sections of this dissertation, these are very critical areas that the data of section 3 are intended to illuminate.

These are the measurable costs that are commonly totted up. A very real economic cost, which can be measured only in very general terms, is that from the inflationary effects of tourism on land values, labour, and materials. In the governmental sector such inflationary growth is experienced in the

increased cost of governmental services and also in an increase in revenues that tend to offset the higher costs. It has been estimated, however, that on balance the net effect of inflation is to reduce the governmental benefit-cost ratio of tourism. (HAWAII, DPED, 1972b, p.24; MATHEMATICA, 1970b, p.6)

Since tourist expenditure is at times considered a factor in the balance of payments, import expenditure might be listed as an item of cost. Certainly if one is to be considered, they must both be considered. Only the tourist expenditure remaining in the area (figure A.1/h) is pertinent. (YOUNG, 1973, p.151)

The distribution of cost and benefits between the public and private sectors is not determined by a pat formula; there is no hard and fast line; many facets shade off into grey areas. Determination of public and private responsibility is subject to considerations of both equity and expediency in a constantly shifting scene of social, political and economic concepts.

2.2.2 Private costs of tourism. - The costs of tourism to the private sector should, it would seem, be readily determinable. No well-founded tourism project is initiated without a sound feasibility study listing anticipated debits and credits in detail. To aggregate these costs and benefits for a total industry such as tourism, however, is very difficult and imprecise. As has been discussed, the tourist demands spread throughout the fabric of the community; to separate tourist activity from that of the resident may be difficult and, in certain areas, impossible. An estimate of this balance is necessary, however, to arrive at an evaluation of the industry.

Not only is there confusion between the activities of the tourist and the resident but, as has been noted, the line between the public and private sectors is not always clear. It is sometimes difficult to forecast the degree to which the benefits of an expenditure of public funds will be divided between an individual developer and the community at large.

There is an increasing governmental awareness of the profits that accrue to the developer from the public act of rezoning - the tangible and intangible costs that are borne by the community as a result of this rezoning and the subsequent development. This is a new area of concern for Hawaii's government; since many of the costs are not measurable, profits are unpredictable, and there is a dearth of precedent, an equitable balance is sought through negotiation. Until a background of precedent has been established this is a difficult position for both the government and the developer. One of Hawaii's largest developers has expressed himself with understandable asperity: "The state government is committed to preserve agriculture, especially sugar and pineapple to provide jobs. Other acreage is necessary for other conservation purposes. 'And there is no way to get the state to take them over for just compensation, either. This state had learned how to zone you out of commercial existence in some spots without paying for the land.'" (Profits from Paradise?, 1973, pp.42, 46)

The chairman of Hawaii's Land Use Commission, who is also a trade union official, has been quoted as basing his decisions regarding this same developer on two rather personal criteria: "(1) that it [the developer] uses its land ownership in what

he [the commissioner] regards as a constructive way; and (2) that in the course of developing its agricultural land for residential use, . . . [it] does not wipe out too many jobs and possibly creates others." It is stated that he appreciates the advantages of dealing with such large landowners since "they can afford to give up something for a park or a school to get something else. They know they're only going to get 80 percent and we can hold them hostage because we can downzone too." (Ibid., p.46)

This is considered the approach of the "pragmatist; he puts jobs before preserving the landscape." In truth both represent very real costs to the community and, in all fairness, if a project cannot produce a favourable balance of benefits and costs for the community as well as for its developer the value or worth of the project can be questioned.

As noted in section 2.1.2 it can be expected that, to preserve favourable benefit-cost ratios in the public sector, increases in governmental expenses will be passed on to the private sector in the form of tax increases.

A realistic estimate of private costs, therefore, must include estimates of anticipated public costs. If an importation of labour or an increase in housing for employees is probable, a feasibility study should consider what these costs might be and by whom they will be paid. Projections such as those considered in section 5.2 may be of critical importance to the development planners in both the private and public sectors.

2.3 The Tourist

For the purpose of this study a tourist may be defined as a visitor to the state of Hawaii. This is an intentionally broad classification and is in agreement with the usage accepted in the Guidelines for Tourism Statistics prepared by the secretariat of UNCTAD. (1971, p.8) The possible exception to this agreement is that the Guideline definition of the visitor includes, but distinguishes between, the tourist and the excursionist or day visitor. In Hawaii there is no statistical need to identify the excursionist or day visitor. He cannot freely cross and recross borders but is limited to a visit of less than a day at the Honolulu airport or harbour and is never recorded as a "visitor" to the state. In Hawaii, therefore, the terms "visitor" and "tourist" are normally synonymous.

The visitor is defined as a non-resident intending to stay for a period of one year or less (but more than a day) and without exercising an occupation remunerated from within the country.

This definition excludes:

1. Residents - arriving or travelling within the state.
This is an important qualification; residents are not considered tourists even though guests at an hotel on an island other than that of their residence.
2. Immigrants, i.e., those who, although they retain their technical place of residence elsewhere, intend to earn their living within the state and to remain for an extended length of time.
3. Foreign diplomatic and military personnel.

Other limitations may narrow the field or extend it for the specific purposes of particular study. One concept, considering that not everyone setting foot in the state contributed to the tourist industry, stated that tourism should be credited with only the income from the expenditures of those who came because of the attractions of the place as developed by the complex of businesses in the tourist industry. (HITCH, 1972b, p.14)

Such terms as "holiday industry" (LEWES AND CULYER, 1970) or "holiday-maker" (ARCHER, 1973, pp.28-31) suggest the exclusion of such travel as that for business, health, conventions, education, etc., although this travel may be drawn by many of the same factors that attract the holiday-maker. The business side of the travel for "business and pleasure" is distorted by tax incentives that encourage the inclusion of a seminar or a convention in a trip that might otherwise be frankly for recreation. The attraction of business groups and conventions is a major part of tourist promotion and cannot be excluded from the industry's balance sheet.

The tourist may be classified into many categories but, if still within the above definition, he is herewith considered a tourist served by the tourist industry.

2.3.1 Classifications. - A problem of the statistician is the selection and classification of information in the most useful form for the public and private planner. For the purposes of recording, storing, and retrieving material on the tourist and the industry, Hawaii's statisticians have divided these tourists

into many categories according to their personal types and activities. Regular reports are published regarding their numbers, length of stay, direction of travel, sex, age, place of origin, destination, reason for travel, frequency of travel, seasonal pattern, occupation, mode of travel, income, etc., as well as many combinations of factors, summaries, trends, and general data regarding his spending patterns, degree of satisfaction, and intensity of use of facilities. Hotel construction volume, employment, wages, room census, occupation rate, conventions and tour groups are recorded.

The statistician and the analyst (who may be one and the same) have a mutually influential relationship. The statistician gathers and correlates the data that he believes is wanted by the analyst. The analyst is limited by the scope of these data and may be influenced by the implications of their correlation. If an analyst branches off into an original analytical concept he is apt to be left with only his own value judgments and broad assumptions as bases rather than proven and indisputable facts.

MATHEMATICA (1970a, 1970b), in its studies of the benefit-cost ratios of tourism in the Hawaiian public sector, recognized a need to examine the composition of prospective visitor inflows - their age, income characteristics, and region of origin - on the assumption that individuals with similar characteristics have similar preference patterns. Three age categories, three income classes, and four region-of-origin classifications were employed, yielding a total of thirty six different categories. From these, significant differences were noted on a state-wide basis and in the county characteristics of such data as those on expenditure

patterns, average length of stay, average group size, and dispersion throughout the islands - as well as benefit-cost ratios for all types.

This original contribution to planning technology produced significant and influential conclusions although its scope was, by intent, limited to the costs and benefits in only the public sector, and the precision of the factors was limited by the available data.

2.3.2 The activities of the tourist. - The activities of the tourist - and his motivations - have been exhaustively analyzed under many conditions and in many parts of the world. They are undoubtedly affected by such factors as his freedom and breadth of choice between available alternatives, and by the limits of his own experience and knowledge of recreational opportunities. In Hawaii the tourist's demands for recreation are compatible with those of the resident although they do not match it precisely for rather obvious reasons. Collectively the tourist group varies from that of the resident; the tourist is older, wealthier, better educated, and is more likely to be a woman. (HAWAII, DPED, 1968, p.57) This tourist may also have a very different background of recreational experience and may well be of a different race. His behaviour may vary from not only that of the resident but from his own behaviour when at home; after all, he is away from his work and the normal constraints of observation by his peers. He has spent a good deal of money for travel and his costs are

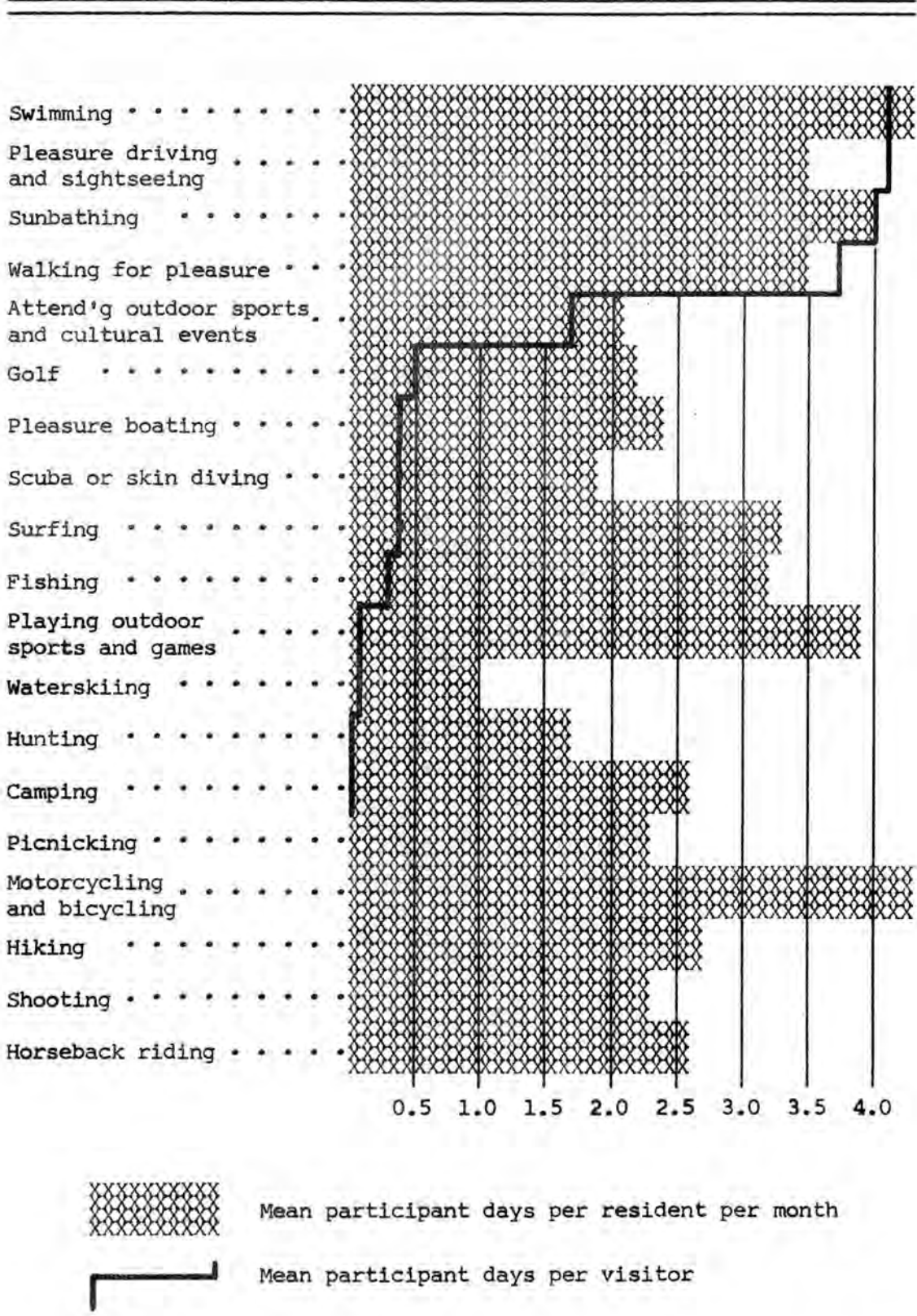
continuing. He has a limited time with more to see than he can possibly accomplish. He can be expected to spend less time on television and the cinema than the resident or than he himself would spend at home. It would be odd indeed if after coming to Hawaii he did not spend more time at the beach than the resident who must work his forty-hour week until the time for his holiday comes. The wonder is not that there is a difference between the recreational patterns of the resident and tourist, but that they are so similar. (figure 2.3.2.1)

In seeking to understand this tourist several possible correlations have been studied. There is a rather obvious potential in the relationship between age and income that leads the elderly affluent tourist into the less active sports and to those that involve greater expense: pleasure boating, deepsea fishing, water skiing, golf, and motoring. The younger and less affluent tourist will tend toward swimming, pier fishing, skin diving, pleasure walks, and cultural events.

Correlations have also been noted in the degree of education which may also be related to age and income. The better educated visitor sunbathes, walks on the beach, water skis, skin dives, attends cultural events, plays golf, and goes boating. The less well educated tend more to fishing, hiking, camping, and attending sporting events. Low income and high education seem to encourage participation in the more active forms of outdoor recreation.

Income, it appears, exercises a negative effect as a monetary restraint or a limiting factor; education has a direct and positive effect on the choice, selection, or preference for the form of recreation. (Ibid., p.71)

FIGURE 2.3.2.1 Resident and visitor participation in major outdoor recreation activities



A participant day is any day during which there was participation in the activity, regardless of the length of such participation.

(SOURCE: HAWAII, DPED, 1968, pp. 48, 59)

Availability of facilities may introduce regional or seasonal factors. Surfing - which originated in Hawaii as the "sport of Kings" - is enjoyed by all income groups for twelve months of the year; elsewhere it may be seasonal or, if travel is necessary, it may be limited to the wealthy (or the indigent "surf bums").

Figure 2.3.2.1 presents contrasting profiles of the proportional use of recreational time by the residents and the visitor - both are unique to Hawaii. Hawaiian residents spend more time in outdoor recreation than do the residents of the nation as a whole. It has been reported that almost 90 percent of all Americans participate in some form of outdoor recreation in the summer. (OUTDOOR RECREATION RESOURCES REVIEW COMMISSION, 1962, p.4) In Hawaii this proportion will be found so employed at any time of the year. "During an average week, excluding vacation periods, only 9 percent of the adult population report that they engaged in no outdoor recreation activity at all." (HAWAII, DPED, 1971a, p.106) The residents prefer active sports to passive and they have a preference for water-based activities. (Ibid., p.115)

Hawaii's visitors concentrate their activities in relatively few outdoor activities: swimming, sunbathing, pleasure driving and sightseeing, and walking for pleasure. These are the relatively sedentary pastimes and, although active sports such as surfing and scuba or skin diving are very popular with an enthusiastic set, their numbers are few. Sports such as golf and pleasure boating attract a small but affluent group. It has been concluded that more than 50 percent of Hawaii's visitors never or seldom

participate in the active or expensive sports of surfing, skin diving, waterskiing, boating, deepsea fishing, horseback riding, camping, hiking, mud sliding, mountain climbing, golf, tennis, volleyball, baseball, football, archery, shooting and bicycle riding - all of which are enjoyed in Hawaii for twelve months of the year. (HAWAII, DPED, 1968, pp.57,58) The visitor appears to have been drawn to his holiday area by certain unusual or exotic features that he is unlikely to find at home and it is these that occupy his time.

Figure 2.3.2.1 has been designed to illustrate the comparative distribution of recreational time or activity by the resident and visitor. The number of days that a resident participated in each activity during a one-month period is compared to the number of days that a visitor participated in each activity during the length of his visit. (Ibid., pp.48, 59) The average length of visit during 1970, the year during which these data were gathered, was 10.3 days. (HVB, 1971a, p.16)

It can be seen that these data estimate the aggregate amount of time that each group spends on each activity. The popularity of each sport and the use to which facilities are put can be seen. The distribution of the activity over a period of time by the tourist and the resident, however, will vary. The resident concentrates his recreation on the weekends; the tourist spreads his efforts out over the week with one day being very much like another.

The weekend peak of activity for each form of recreation is shown on table 2.3.2.1 and figure 2.3.2.2. This estimates the numbers of both residents and visitors that might be found

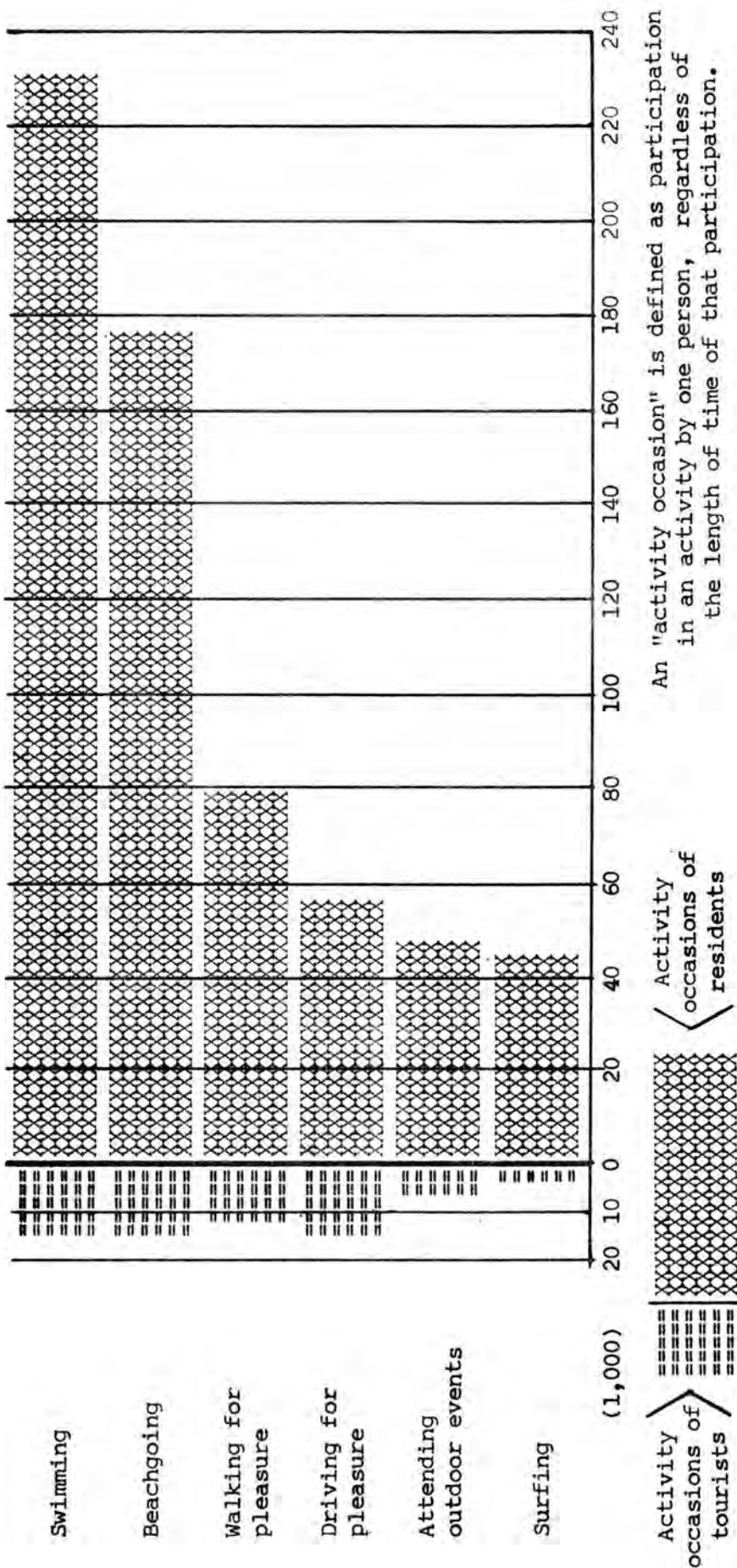
TABLE 2.3.2.1 Estimated average weekend activity occasions of Oahu residents and tourists in 1970

	Average weekend* activity occasions		
	<u>Residents</u>	<u>Tourists</u>	<u>Total</u>
Swimming	229,100	13,000	242,100
Beachgoing	175,200	12,700	187,900
Walking for pleasure	77,800	11,800	89,600
Picnicking	98,900	-	98,900
Bicycling	64,200	-	64,200
Driving for pleasure	55,200	13,000	68,200
Fishing from shore, pier	68,200	600	68,800
Surfing	45,600	1,300	46,900
Attending outdoor sports events	23,900	5,400	53,500
Attending outdoor cultural events	24,200		
Beach camping	21,100	200	21,300
T O T A L	883,400	58,000	941,400
Distribution	93.8%	6.2%	100%

* An "activity occasion" is defined as participation in an activity by one person, regardless of the length of time of that participation.

(SOURCE: HAWAII, DPED, 1971a, p.114)

FIGURE 2.3.2.2 Estimated average weekend activity occasions of residents and tourists in Hawaii: 1970



SOURCE: HAWAII, DPED, 1971a, p.114

occupied in the various activities on any average weekend. It can be seen that even in the most popular of the tourist activities the resident is still by far the greatest in numbers during the peak periods. Capacity is determined by resident demand and the areas of tourist usage are those with ample capacity. Certainly the water-oriented activities are not strained by the tourist addition of less than 5 percent. Twenty percent of those driving for pleasure are tourists but this must be an insignificant portion of the total road traffic. Ten percent of those attending sports and cultural events are visitors but a good many of these are attending performances planned and provided specifically for their benefit.

It seems safe to conclude that, in Hawaii, the tourist fits easily into the recreational pattern of the residents; no special provision need be made for him, except at isolated tourist centres, and no resident facilities will be preempted by him.

This compatibility of tourist and resident recreational taste has a further significant side which is mentioned in sections 2.1.3 and 3, i.e., the difference between the master-servant relationship in a commercial or industrial area and that relationship in a resort area where the hotel employee may be drawn to the area and its employment by the same attractions that have lured the tourist. Such a common interest establishes a bond of understanding between visitor and employee that puts them on more of a guest-host relationship than that of a master-servant.

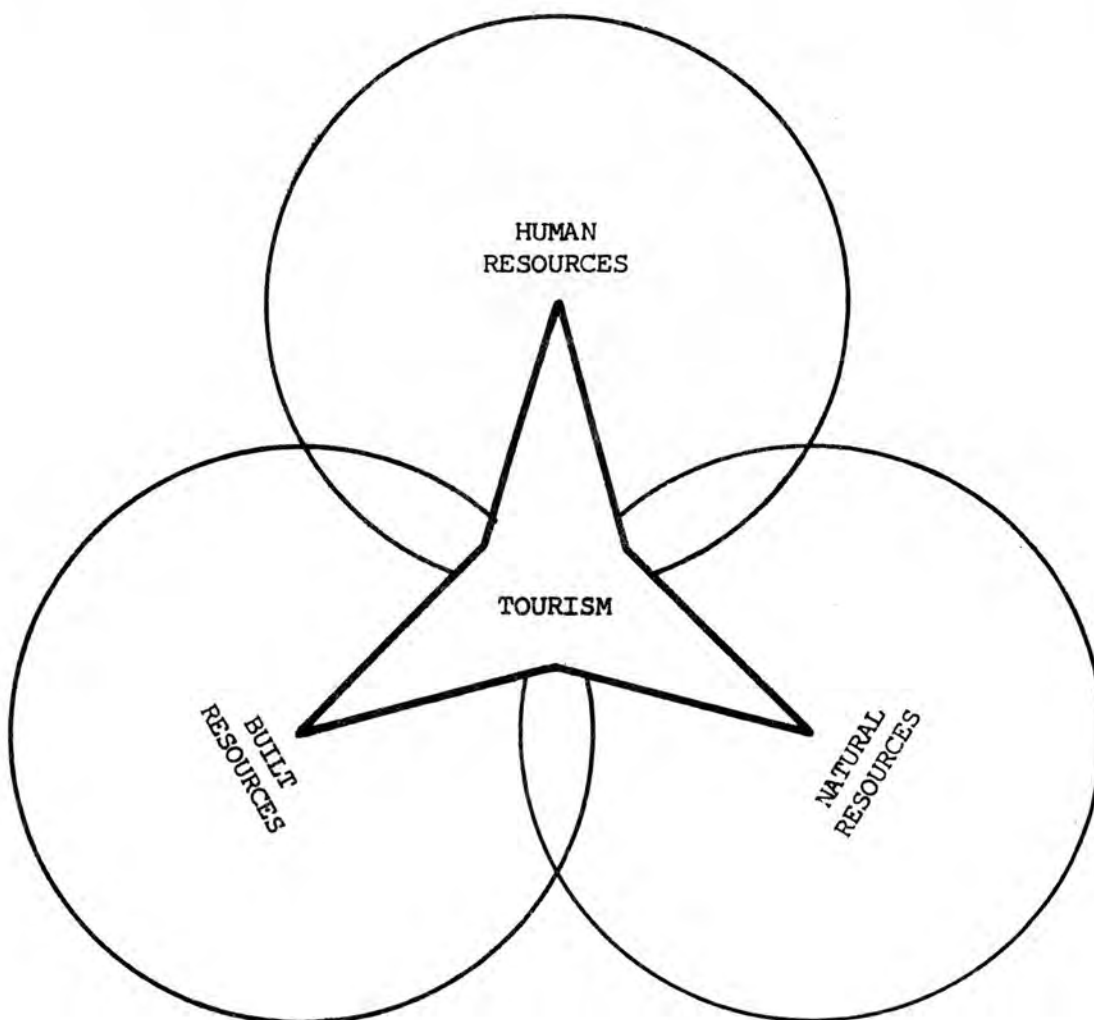
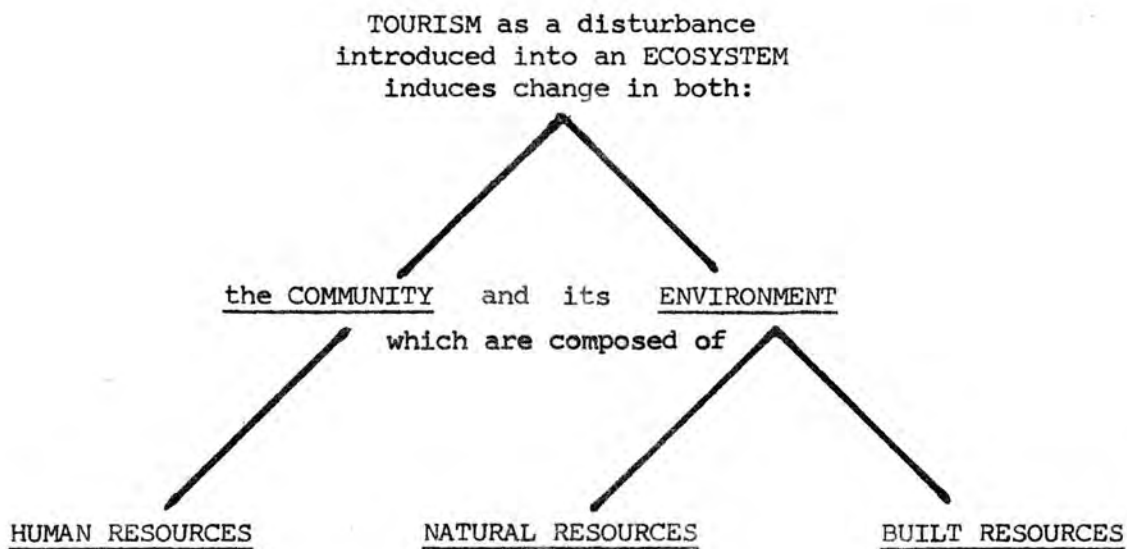
2.4 Regional Capacity for Tourism

In the terms of systems analysis an industry introduced into a community can be considered as the intrusion of a disturbance into an ecosystem. (McLOUGHLIN, 1970, p.290) As indicated in figure 2.4.1.1 the effects will be felt in all parts of this system consisting of the community of residents and their environment of built and natural resources. Effects may be in the form of benefits, i.e., a source of supply to the system, or they may be in the form of costs that place demands on the elements of the system.

For the determination of a system's capacity to receive and integrate a disturbance, an analysis must be made of the probable demands, the available resources, and the use to which these resources might be put to meet the demands. As presented in figure 5.2.2.1 this can be performed in a series of steps involving a mutual adjustment of demands and uses for the best use of the resources. Resources may be considered as they are, as they might be developed, and as they might be augmented by additions or importations. Alternative proposals with the costs and benefits of each may be required for final decision.

These are the actions of the planner. The subsequent all-important steps of decision-making, implementation, and control must be firmly grounded on a clear understanding of the region's aims and objectives. What relative weight should be given to competing economic, social, and environmental interests? Only with such principles well established can the subjective social and environmental values be placed in balance with the objective economic costs and benefits. An official will need firm support

FIGURE 2.4.1.1 Tourism as a disturbance in the resort community



if he decides to sacrifice a clear and present economic gain for a vague and future social or environmental condition.

2.4.1 Environmental capacity. - Man's environment, as indicated in figure 2.4.1.1, consists of the resources that nature has provided and also those that man has built; ideally each enhances the other. Man's record, unfortunately, shows that his relationship with nature has been one of conquest rather than peaceful cohabitation and respect. Most destruction and pollution has been charged to the account of industrial growth but man has been very nearly as destructive in his search for recreation as he has been in his search for wealth. Man as a tourist is no more considerate than man as a bread-winner.

The capacity of a resource or a group of resources may be measured by the amount of use that it can receive without (1) overcrowding or (2) excessive wear. Man-built resources are, generally, more specific in their limits than are nature's resources. The capacity of a tennis court, hotel, or theatre can be clearly stated. There is more latitude in use of a restaurant, a bar, or a motorway but even these can be fairly tightly bracketed. Maintenance costs of all of these are predictable although they might be qualified by the intensity of use.

The capacity of natural resources is usually less explicit. An abused process of regeneration can go into reverse, starting a downward spiral of destruction or a chain reaction with a domino effect of far reaching consequences. One beach buggy traversing a dune may start a process that will completely change the topography of a region. An intelligent and sensitive program of

development and maintenance, on the other hand, can increase nature's powers of regeneration and extend the capacity of her resources.

The enjoyment of nature is a very personal experience that spreads the capacity of some resources over a wide range. One beach might be happily crowded, giving a high degree of satisfaction to a joyful throng of congenial, neighbourly sunworshippers; another beach might seem crowded by the appearance of a second swimmer half a mile away. A team of maintenance men with rakes might be required or a beach might cleanse itself. It has been suggested that the beaches of Donegal could support some 440 people per mile without crowding the beaches, the roads or car-parks, and without excessive physical or ecological damage.

(AN FORAS FORBARTHA, 1966, p.43) The capacities of East Lothian beaches have been established by a judicious spacing of picnickers' recesses in the dunes and by a matching capacity in the adjacent carparks.

The demands of the Hawaiian tourist, as indicated in section 2.3.2, are centred on only a limited part of the island resources and, even in this limited sector, his demands are minor compared to those of the island residents. This creates a statistical problem in determining the relative responsibility of each sector for their share of usage, but it also implies a desirable state in which the compatibility of interests and activities removes from officialdom the necessity of choosing between the two. Capacity sufficient for the weekend peaks of resident use is more than ample for the weekday demand of the tourist.

It is often stated that uncontrolled tourism destroys the very thing that attracts it. This is undoubtedly true to a degree but it may be an overstatement. Crowded Waikiki is used as an example of a commercial development that is losing its charm; still, however, it attracts and holds more visitors than do the quiet secluded resorts. Whether good or bad depends on the area's objectives. There are demonstrably more tourists who prefer the bustle of a busy urban resort than there are those who seek quiet seclusion. The bulk of those who populate the crowded beaches, bars, restaurants, shops, pools, cruise ships, and theatres do so from choice and not necessity. Herein lies the wisdom in the British concept of the country park which attracts and holds the gregarious traveller before he reaches the quiet, secluded area for which the sensitive few search. (Town and Country Planning in Britain, 1972)

Whether in the urban or rural scene, tourism does demand attractive surroundings with all that this implies in quality. In Hawaii the term "quality growth" is now heard on all sides. (HAWAII, DPED, 1972c, p.1) Since tourism demands quality and since tourism is Hawaii's second source of income (1.3.3) "quality" is seen to have a monetary value as an economic necessity rather than a social luxury. It has been taken from the aesthete and put in the lap of the economist - a fact for which tourism may not have received full credit.

2.4.2 Social capacity. - The social capacity of a region for the servicing of tourism is, perhaps, the most obscure limit to anticipate. Human reactions are difficult to identify, substantiate, and evaluate. Issues are subjective; cause-and-effect relationships are most involved. There are no universally accepted scales of measurement and comparison. What is considered a community cost to one may seem a benefit to another, and in either event "no one has yet succeeded in quantifying such costs." (MATHEMATICA, 1970b, p.32)

An increased appearance of working wives on the labour force is measurable (HAWAII, DEPARTMENT OF HEALTH, 1967) but is it a cost or a benefit? In either case should it be entered on tourism's balance sheet? Might not a basic change be in progress that would accompany the introduction and growth of any new industry? If an increase in working wives is accompanied by an increase in unattended children the causal relationship seems clear. If there is also an increase in juvenile delinquency (HAWAII COUNTY, 1970) is this an extension of the same chain - and thus a cost of tourism - or, since the problem is occurring elsewhere, are there other causes? (HAWAII, DPED, 1972a, p.96)

A limit of capacity is measured and stated numerically. To how many tourists can a region act as host without unacceptable social repercussions? Here, again, a clear statement of community aims and objectives is all-important. The measurement of social costs and benefits can only be accomplished on a scale of values acceptable to the community.

Just as with the physical limits, such as established by bed capacity or infrastructure, there are social thresholds. In

section 4 it is demonstrated that there is an employment limit beyond which the importation of labour will be necessary. A study warning that this importation of labour will lower the governmental benefit-cost ratio has been quoted. (MATHEMATICA, 1970a and 1970b) Just as there would appear to be a point at which employment ceases to be an economic benefit and becomes a cost, so this employment which initially has social benefits could have a threshold beyond which the resident society would suffer from the importation of foreign labour. Whether the employment for tourism is ever a benefit and, if so, to what degree must be determined by an analysis and comparison of the local labour force and the demands of tourism (figure 5.2.2.1).

An acceptable ratio of tourists to residents is difficult to predict but it is a most important ratio to keep under observation. It might be argued that the problem would be self-adjusting, i.e., that when the area became unattractive due to a plethora of tourists, the tourists would be drawn to other places and the ratio would drop. As aptly put by Lawrence Berra: "No one goes to that restaurant anymore; it's too crowded." This is not demonstrably true; the visitor who does not like crowding may leave but he is followed by those who do. "General opinion in the travel industry is that Hawaii is experiencing the life cycle of most world tourism areas in which 'the mass joins the class' and lowers the average quality and price of facilities." (CRAIG, 1963, p.35)

While the visitor may seek change and exotic surroundings he also seems to wish anonymity; he would prefer to blend into the background. He is flattered if taken for a resident. This

was particularly notable during World War II. Resident armed forces, in 1944, were some 47 percent of the total population (HAWAII, DPED, 1967, p.29) and the total would swell far beyond this when the "fleet was in". Streets were packed from wall to wall with uniforms and Hawaii was, for all its peace-time attractions, one of the most unpopular of duty stations. Larger cities where the service man could shed his uniform and lose himself with the residents were popular although in peacetime they have little to offer.

The Oriental tourist who may not speak English and travels with a group of his fellow countrymen stands out as a foreigner, viewing the islands from the outside - seeing only the surface. It may be stated as a generalization that the number of visitors who may be assimilated by a community will vary in direct proportion to the degree of similarity between the resident and the visitor. These differences are not only in race, creed and colour, but in social status and values. Herein lie the most frequent and most profound clashes between visitor and resident.

Socially significant indices can be noted at the macro scale but the problems are best studied at the local level. Correlations may stand out most clearly at the regional level where only generalities are recorded; the details of cause-and-effect relationships are more personal and cannot be assumed from overall tallies. There is an obvious correlation between the growth of tourism and an increase in the Hawaiian divorce rate; (HAWAII, DPED, 1972c, pp.27, 107) a reasonable cause-and-effect relationship can also be argued but to establish it as fact requires the backing of a significant mass of pertinent case histories. (YOUNG, 1973, p.114)

Significant studies (LIND, 1967, p.21) have been made of a representative Hawaiian community on the west coast of the island of Hawaii - the site of hotels A, E, and X (section 3). The historical development of this area has typified that of the State; it has proved a fruitful source of sociological data - an area large enough to be significant and yet not so large as to be unmanageable. From this cross-section many interesting conditions have been observed and documented; most are representative of conditions found elsewhere in the State, although not always as distinct or to the same degree.

The community of this Kona Coast has formed itself into two distinct groups: (1) the mauka (toward the mountain) community based on an agricultural economy of the industrious and ambitious Orientals and haole (white) elite, the advocates of a peasant philosophy of hard work, strict family discipline, and a puritanical morality who look with dismay on what they consider the undermining influences of (2) the makai (toward the sea) community.

This makai community, an amalgam of the relaxed and easy-going outlook of the Hawaiians (whom Captain Cook found on this same coast in 1778) with the "beach-combing haoles" - is seen as typified by the tourist, living for the moment, putting personal pleasure before family duty and loyalty - an avaricious economy based on an insubstantial industry and peopled by irresponsible transients. (LIND, 1967; HAWAII, DPED, 1972b, p.10)

The statement of these two views may seem extreme but it is a fair representation of the polarization that has existed. Tourism is not the cause but has magnified these differences,

which are deeply rooted in the competing economic systems and the ethnic disparity of the residents.

What have been seen as causes of dissension are, more likely, symptoms. (LIND, 1967, p.69) In either event they are factors that affect tourism's threshold of social acceptability and their trend should be observed and evaluated in the light of the community aims.

Contention comes into the open over such public issues as school vacations ("the coffee schedule"), (Ibid., p.72) public transport, and housing. Beneath these are the personal concerns over competing life styles that divide families. The coffee farmer's wife or daughter in hotel employment - working all day and perhaps into the night in an atmosphere of wealth and holiday gaiety - finds it difficult to return to the drudgery and simplicity of the farm. The contrast of the free-spending, sophisticated, relaxed associates make for dissatisfaction with the simple, hard working, morally rigid husband or parent.

The sociologist notes these conditions but offers no remedies. It is hoped that time will bring a smoothing of the edges although not by erasing the ethnic lines with their traditions and values that are so much a part of the rich Hawaiian background and one of tourism's most valued assets.

The life of the residents of the community can be vastly enriched by an awareness of the cultural treasures which their neighbors of other ethnic groups have brought to Kona, but which they have heretofore largely kept to themselves for fear that they might be thought un-American and hence unworthy. The time has come in Kona, as it has elsewhere in the Islands, to emphasize the principle that unity within the community is dependent not so much upon conformity as upon the interdependence of parts and the degree of communication among them. (Ibid., p.74)

A reliable index of tourist saturation can be seen in the quality of the resident's welcome for the visitor - known in Hawaii as the "aloha spirit". As a greeting or farewell, "aloha" is an affectionate expression of goodwill that is in danger of becoming merely a bit of commercial cant. In its best sense it represents a unique quality of the Hawaiians who historically welcomed the visitor with great warmth. Prior to World War II "boat day" was an unforgettable and exciting experience for visitor and resident alike: shouts, music, tears and laughter, serpentine streamers, diving boys, and, over all, the pervading aroma of ginger, plumeria, and carnation leis. Little of this has carried over from the dock to the airport but it is still sensed. Although the novelty of the arrivals is gone the Hawaiian still greets his guest with more affection than avarice. His attitudes and the gentleness of his land have qualities of contagion and survival that demonstrate how elastic social limits can be, but even the most buoyant of hosts can be swamped by overwhelming waves of tourism.

2.4.3 Controls. - There is, on the surface, a certain lack of logic and reason in the need for controlling tourism. As an industry, tourism's social and economic interests are not in conflict with those of the resident community; its continued success demands a provident respect for the community's resources and ecological balance.

It might be thought that an instinct for self preservation would operate to exercise a degree of self-control sufficient to make arbitrary controls unnecessary. In truth, tourism might

be allowed to develop unchecked were it not for two very human and common factors:

(1) A conflict of interests exists between the individual developer and the community. Overdevelopment is usually an aggregate effect and seldom attributable to the individual. The individual interest is in a maximum development; the community interest demands restraint. The degree of restraint must be determined at the community level, and, therefore, is best administrated at that level through impersonal controls. It is neither reasonable nor realistic to expect each individual to determine the degree of restraint or to expect his conscience to enforce the limitation. (HARDIN, 1970)

(2) Development and management of an enterprise may be in different hands with different interests and degrees of responsibility. The developer's interest may be limited to an initial profit from the sale or lease of land and improvements. With no responsibility for operation he may have little or no interest in community or ecological problems. In Hawaii much of the land is held in large estates whose trustees measure the prudence of their stewardship only in economic financial terms. With the increase of absentee ownership - through large chain operations or foreign ownership - there is an obvious danger that loss of local control may bring less concern for local interest.

The American community is limited in the means of control that it may exercise to restrict or direct the movement of its residents or visitors. The laissez-faire principles are still intact although rather battered. Three basic governmental powers can be used: (1) the power to tax, (2) the police power, and (3) the power of eminent domain. (HAWAII, DPED, 1972a, p.117)

The power to tax is used as both a means of income and of control. Action can be encouraged or inhibited by levying or withholding taxes and by setting high or low levels of evaluation. In Hawaii an assessor's judgment of a property's highest and best use is a powerful influence of control and implementation. (HAWAII, DPED, 1972a, p.57; 1972b, p.25)

Economists have recommended selective taxation as an effective means of controlling such matters as pollution or the growth of tourism by instituting a program that would establish realistic prices for the use of society's resources. It is believed that:

Visitors contribute heavily to the environmental problems of the State. The airplanes that bring them create noise and fumes. The automobiles they rent increase pollution, the construction of hotels in which they stay uses up land and can, if planned improperly, destroy the natural beauty of an area. A system of taxes designed to control these problems would and should fall in substantial proportions upon the visitor. (MATHEMATICA, 1970b, p.13)

It is also argued that outright prohibitions have often proved unenforceable and fines have been regarded as merely nuisance payments. "It is difficult to imagine a set of effluent charges as low as the fines that frequently constitute the substance of a policy of 'outright prohibition' in practice."

(Ibid., p.12)

The strength of Hawaii's tourist industry has needed a firm rein provided by the police power in the enforcement of state and county planning, zoning, building, and health ordinances. Such police powers can only be exercised as a form of "reasonable control over persons and property within its jurisdiction in the interest of the general security, health, safety, morals, and welfare except where legally prohibited." (MERRIAM-WEBSTER, 1967, p.656) This is a very negative statement but in practice the relaxation of regulatory measures, such as a favourable change in the zoning ordinance or the land use law, constitutes a powerful incentive. (HAWAII, DPED, 1972a, p.59) As noted in section 2.2.2 these are of such value that developers find it expedient to trade off some of their gains with the community.

The power of eminent domain, i.e., "the right of a government to take private property for public use by virtue of the superior dominion of the sovereign power over all lands within its jurisdiction," (MERRIAM-WEBSTER, 1967, p.271) is used sparingly since it involves the expenditure of public funds for the taking of property. The right is exercised largely in matters of great public concern when it is difficult to prove the existence of a public risk to health, safety, morals, or welfare through a use of the land in a manner other than that which is proposed. Such matters are usually of an aesthetic nature or involve the preservation of resources the critical need for which has not been established by legal precedent.

Such a taking of property may not require the purchase of the land itself. Building heights can be restricted - say, for

the preservation of a view - by the purchase of air rights above a certain height. Tax relief in recognition of the reduced building potential may form part of the consideration.

These controls bear on the developer; control of the tourist himself is a different matter. An essential of recreational enjoyment is an apparent freedom of movement and choice. Negative or prohibiting regulations are an indication of insufficient resources or of improperly distributed resources. Again we note the wisdom of the British country park - the counter-attraction that gives the visitor an obvious choice compatible with the planner's intent. (COUNTRYSIDE COMMISSION, 1969; GREAT BRITAIN, 1967, 1968; ASHWORTH, 1973)

Governmental self-control is necessary to achieve a uniform interdepartmental recognition of aims and objectives and a coordinated administration of policy. Not more than one variable can be maximized at the same time. Tax authorities, traffic engineers, conservationists, land use commissioners, labour and employment officers - all interested and involved parties - must agree or receive firm and clear directives regarding the values and priorities that will determine the order and degree of maximization policy.

Such directives and their supporting chain of policies, aims, and objectives require a solid base of detailed, statistically supported information. The community and its government must have a common philosophy regarding the necessity, possibility, and desirability of controls.

What aspects of the community life and economy are subject to effective control? What means of control are available and acceptable: positive and negative, technical and political? By whom are controls best exercised: through legislative, executive, or judicial action? Where are the proposed controls best administered: at the national, regional, or local level? Have the community and its government the requisite skills and information to foresee, with an acceptable degree of certainty, the results of their intervention?

Faced with such questions the planner finds that in all too many fields statistical backing is either inadequate or totally lacking (MATHEMATICA, 1970b, p.34), and it is to a strengthening of this statistical and theoretical base that the survey of the following section is directed.

3. HOTEL EMPLOYEE SURVEY

3.1 Survey Method and Form

- 3.1.1 Data sources and selection
- 3.1.2 Collation
- 3.1.3 Correlation

3.2 Employee Distribution

- 3.2.1 Employees per hotel room
- 3.2.2 Employees per hotel department

3.3 Employment Composition

- 3.3.1 Composition by sex
- 3.3.2 Composition by age

3.4 Employment Variables

- 3.4.1 Occupancy rates
- 3.4.2 Part-time employment
- 3.4.3 Productivity

3.5 Trends and Conclusions

3. SURVEY OF HOTEL EMPLOYMENT IN HAWAII

3.1 Survey Method and Form

3.1.1 Data Sources and selection. - Many variables have a potential effect on the number, type and distribution of employees in a hotel. The selection of representative samples for analysis is a critical step if the study is to make more than a pretense of significant comprehensiveness. In Hawaii such a study is simplified by the narrow range of facilities needed and provided. Oceanic isolation is an effective barrier to the flow of car-borne tourism and its accompanying caravans and trailers. Camping is a popular form of recreation for the resident but not for the visitor. The number of small guest houses is insignificant; the seasonal fluctuations are so slight that they do not encourage a spate of private room offerings.

A study of Hawaii's tourist accommodations is customarily considered a study of Hawaii's hotels; the total range of variety is in the size of the hotel, its degree of luxury, and the comprehensiveness of its services. The visitor who leases a flat or private home, or the visitor who stays with friends is not included in such a count and his numbers are not known but in any event he is not the concern of this study.

Seven hotels were selected for analysis. At the request of their management they are referred to by symbols: A, B, C, D, E, X, and Y. They were selected for their variety of location, size, age, and character to give a representative sampling and for a reasonable testing of hypothesized relationships. They were also

chosen for the ability and willingness of management to provide adequate and comparable data.

Numerically this sample includes a total 2,378 guest rooms or 21 percent of the total on their islands, (HAWAII, DPED, 1972c, p.114) and 1,602 employees or 34 percent of the total number of employees. (Ibid., p.101) The discrepancy between these percentages underlines the point that has been made regarding the risks in comparing or applying undefined averages. The island-wide totals include the employees in hotels that provide room service only; the community's employees who provide the other necessary services are not included. Hotels A-E were selected as examples of those with full services. Hotels X and Y were chosen as examples with room service only for comparison. Briefly, the hotels can be described as follows:

Hotel A, in Kailua, Kona, Hawaii, has 222 rooms and 140 employees. This hotel is the oldest of those reviewed. Built in 1929, it is well known as the destination resort in what is now a very active tourist area; the Kona (West) Coast of the Island of Hawaii, the largest island of the Hawaiian chain. Although it enjoys an established position it suffers from competition with the newer and more luxurious hotels. It is in the centre of the village of Kailua, a sleepy little village of about 400 population that has been largely taken over by tourists and those catering to the tourists who are now spreading up and down this once quiet stretch of coast that runs north and south for about 90 miles of coffee and sugar plantations, grim lava flows, lush fern and ohia forests, and roads that range from a riot of colour to a grey volcanic monotone. The life and history of this district is

a good sampling of the whole island chain. Some of its problems are discussed in section 2.4.2.

Hotel B, at Kaanapali, Maui, has 353 rooms and 276 employees. The hotel was opened in 1971 in a highly competitive area of new resorts at a rather inauspicious time of poor occupancies. This west coast of the island of Maui has been an area of explosive resort growth with the earlier dependence on the sugar industry being phased out by the plantation owners who are making the most of the tourist potential in these sweeps of beach, mountain and ocean views, and particularly equitable climate. Being overwhelmingly dependent on tourism, the area is very vulnerable to fluctuations in the industry. The hotel has a full complement of dining rooms, bars, etc., as have most of the hotels in the area. Many employees are young transients.

Hotel C, in Hilo, Hawaii, has 389 rooms and 250 employees. Hilo, the site of hotel C, is the second largest city in the state with a population of over 26,000. The hotel depends on tourism but, due to its urban location, not as completely as the others. A large portion of its trade is with local residents attracted to its bars and restaurants. It caters to tour groups although younger and vigorous neighbours are highly competitive. Employment is from a relatively stable local urban supply.

Hotel D, near Lihue on Nawiliwili Bay, Kauai, with 481 rooms and 461 employees is the largest hotel on the island. It attracts island-wide local trade and draws employees from the whole island. Due to a loosely knit plan with the use of separate cottages as well as a multi-story structure its employment ratios are higher than average.

Hotel E, in Kailua, Kona, Hawaii, is the largest in the area, as well as the largest of this survey, with 549 rooms and 397 employees. Roughly eight miles south of the village of Kailua - the site of hotels A and X - it is in a highly competitive area and has the lowest occupancy record of all hotels studied. It is also the newest hotel; and while these data were being assembled it was still having growing pains. It has the youngest employment group most of whom are drawn from the local supply of young and transient workers. The turnover rate is high. A full complement of dining and bar facilities are present but there is relatively little local trade due to its location.

Hotel X, in Kailua, Kona, has 185 rooms and only 46 employees since it provides room service only. Hotel Y, in Lihue, Kauai, has 199 rooms and also provides only room service and, therefore, has only 32 employees. These two hotels were included in the survey to provide a comparison and to illustrate the point that has been made as to the difference in employment ratios between these hotels and such comprehensive hotels as the other five. There are bars and restaurants in the neighbourhood that serve the guests in these rooms; it is a premise of this report that the total employment of these hotels plus the supplementary neighbourhood facilities would be comparable with the total employment in a comprehensive hotel serving the same number of guests.

3.1.2 Data collation. - At the commencement of the survey the collation of data i.e., its collection, comparison, verification, integration and its ordered arrangement was guided by the basic and supplementary hypotheses limiting these data to those that seemed pertinent and not previously assembled. Individual files of the previously mentioned 1,602 employees in seven hotels were examined and from them were extracted the apparently pertinent data. All personal contact with employees was avoided to eliminate any unconscious bias from this source. It is believed that the records were completely factual. Few of the items could have had any effect on employment and thus little cause for dissembling. In the cases where there might have been such cause - as in the statements on marital status where married employees were not allowed to work in the same department - the employees were well enough known by management to make such dissembling impracticable.

The available records consisted of employment application forms, action and comment by employers, and data on subsequent advancement, vacations, illness, and changes as in marital status, etc. In addition to the basics of age, sex, marital status, dependents, and address, such items could be found as physical condition and health record, education, special training, hobbies, interests, financial position, military service, previous employment, persons to notify in case of accident, relatives or friends in this same employment.

The survey was made at a fortuitous time; many hotels do not have this information and some of those included in the survey are discontinuing or reducing the scope of the questionnaires.

3.1.3 Data correlation. - From the available detailed information were selected those facts which seemed to have a bearing on the form of employment and on the beneficiary effects of this employment. These data were set out in various forms to facilitate the search for patterns and the analysis of mutual or reciprocal relationships - both correlative and cause-and-effect - and to consider the implications of these relationships.

This was not, of course, done purely by chance but was guided, as has been stated, by the initially advanced hypotheses. Groupings were made by sex, age, marital status, residential status, number of dependents, department of employment, etc., and these were totalled for individual and aggregate comparisons in different combinations and with different cross-references. As analysis developed and relationships became apparent, feedback indicated the need for a statement and testing of additional correlations that had not been initially considered.

The search for correlations and the selection of those that appeared to have predictive value was guided by the wish to avoid the situation noted by CRAIG (1963, p.3) in which "the correlation approach involves projection of the several control variables, any one of which may be as difficult to forecast as Hawaii visitors itself"; a condition that led Dr. Craig to the opinion that "a correlation approach gives a spurious aura of science to what in reality is a judgment problem." Judgment is, of course, exercised here in the selection and application of correlations. It would appear that Dr. Craig's alternative of "investigating trends and speculating on the most likely trend. . . is nothing but a qualitative equivalent of correlation."

(GHALI, 1970, p.31)

It is presumed that, for the purposes of this study, only correlations with predictable and measurable variables will be of use.

Most data have, for a common reference, been stated as ratios to the number of hotel bedrooms which are hereafter referred to as "rooms" and must not be compared with other reports which may use this term in a different way as, for instance, to include "all rooms within such establishments". (LEWES, CULYER, and BRADY (1970) p.19.) This use conforms to practice in the survey area and has certain advantages over the bed-count as preferred by some.

(UNCTAD, 1971, p.1) The number of rooms is a stable quantitative unit, easily determined and predictable from developers' plans. Seldom are rooms designed for other than double occupancy; if more or less than two occupy a room it is usually done by an adjustment of furnishings that do not change the hotel capacity.

The number of beds is, of course, dictated by the type of demand; the number of occupants per room will vary with the type of client that the area attracts and this can vary with time. It has been estimated that an average for the State of Hawaii, being largely determined by the heavily weighted urban areas of Oahu, had 1.8 occupants per room in 1952 and 1.7 per room in 1959. The other five islands which have less traffic in travelling business men, government officials, and such single travellers, had an average of 1.9 occupants per room in 1962. (CRAIG, 1963, p.26).

Under certain circumstances consideration of the rate of occupancy may be justified; essentially this amounts to an

adjustment making the occupied-room-count the reference base rather than the total-room-count. As will be discussed later, this did not seem necessary for this study.

The number of bed rooms is the first statistic available from promoters of proposed resort development. It is posited that from this basis dependable ratios can be determined for projections of the effects and implications of proposed development.

3.2 Employee distribution

3.2.1 Employees per room. - A clear definition of the derivation of this ratio is essential since:

1. It is commonly and widely accepted as a rough guide for the projection of anticipated hotel employment.
2. The estimates of employment derived from this ratio may form the base for a series of projections with the potential for greatly multiplying an initial error.
3. Comparability with other estimates is necessary to establish each projection's validity.
4. An analysis which, in part, benefits by reference from the work of others must be assured, and must give assurance, that this matching of effort is compatible.
5. The wide range of possible (and proper) definitions of hotel employment introduces an equally wide range of error if the definition is not absolutely clear.

This last variable - the scope of employment inclusion - can be determined by the conditions of the study area, the interests and motivation of the analyst, the limitations placed on the survey, and the availability of data. An undefined figure can be most misleading; if the data represent an average of all the hotels in an area it will include some with and some without food and beverage departments, recreation and entertainment facilities, and perhaps a variety of shops. Such an average would not serve the purposes of this study and could not, without adjustment, be compared to any average of selected facilities. All averages might have their uses and applications if their derivations

are made clear but cannot, otherwise, be compared or mingled. (CRAIG, 1963, p.31; CHU, 1965, p.55)

Urban hotels are more apt to pass the responsibility for ancillary services to others than are rural hotels that may not have the supporting services at hand. Thus, as a generality, the isolated hotel that must provide for all of its clients' needs, as intramural services, tends to have the highest ratio of employees per room; the rural cluster hotel has a lower ratio, and the urban hotel has the lowest.

The extent to which an urban visitor may wine and dine in establishments other than his or a neighbouring hotel is indicated by an estimate (FIRST NATIONAL BANK OF HAWAII, 1963, p.36) of tourist spending as presented on table A.1. Of the expenditure for food only 29 percent was spent in hotels and the rest was spent in restaurants (43 percent), food stores (14 percent), and drug stores (14 percent). Of the expenditure for beverages only 28 percent was spent in hotels and the rest in restaurants (43 percent), liquor stores (19 percent), and drug stores (10 percent). These percentages are qualified as being estimated for the Waikiki area - an urban community. A very different pattern would be expected in a rural setting without the competing galaxy of bars, restaurants, drug stores, liquor stores, and food stores. In an isolated setting the hotel has both a greater responsibility to its guests and a greater profit potential as a spur.

As another generality the urban hotel benefits from the presence of a labour pool that may shift from one hotel to another, ready to fill temporary vacancies or take care of temporary overloading. The isolated hotel must be more self-sufficient, carrying a permanent staff through fat and lean periods. The urban hotel

can, too, find a more skilled level of labour that does not require the long in-house period of training that is common for the inexperienced rustic employee. The urban worker is apt to have a higher rate of productivity than his rural opposite number.

To increase an understanding of these ratios and to provide guide lines for their adjustment to special or non-conforming cases, the employment of hotels A-E has been broken down by departments and ratios produced for each department.

Table 3.2.1.1 presents for each hotel the number of rooms, the number of employees for each department, the number of employees per room in each department (in parenthesis), and the average total number of employees and employees per room in each hotel and in each department. This clarifies the nature of each hotel as well as its size and its number of employees.

Hotels X and Y are the smallest and also the least comprehensive of the selected hotels. They are not included in the comparative averages and are shown only to illustrate the eccentricities of such hotels since they provide only the basic requirements of dormitory service of housekeeping, front office, uniformed services, accounting, and maintenance; they exclude beverage service, food preparation, food service, and miscellaneous services such as laundry, entertainment, sports, etc. With the elimination of these services both the management and maintenance staffs are reduced substantially below the requirements of comprehensive hotels such as hotels A-E.

The generally lower ratios of hotel Y are caused by a lower occupancy rate. As can be seen on the later presentation of this variable, hotel Y, going through a highly competitive period has had one of the lowest rates of occupancy and hotel X has one of the highest. If the ratios were stated in terms of occupied rooms rather than total rooms, they would be more equal.

TABLE 3.2.1.1 The employment in seven hotels, indicating the number of employees in each department and, in parenthesis, the ratio of the number of employees to the number of rooms in the hotel

(SOURCE: Author's basic data survey)

Hotel	Number of rooms	Front office	Housekeeping	Uniformed Services	Beverage Service	Food Preparation	Food Service	Accounting	Maintenance	Miscellaneous Services	Management	TOTAL
Hotel E	549	30 (0.055)	52 (0.095)	13 (0.024)	33 (0.060)	77 (0.140)	115 (0.209)	16 (0.029)	43 (0.078)	12 (0.022)	6 (0.011)	397 (0.723)
Hotel D	481	22 (0.046)	79 (0.164)	13 (0.027)	22 (0.046)	65 (0.135)	145 (0.301)	11 (0.023)	71 (0.148)	30 (0.062)	3 (0.006)	461 (0.958)
Hotel C	389	22 (0.056)	56 (0.144)	9 (0.023)	18 (0.046)	35 (0.090)	65 (0.167)	9 (0.023)	25 (0.064)	6 (0.015)	5 (0.013)	250 (0.643)
Hotel B	353	11 (0.031)	44 (0.125)	6 (0.017)	23 (0.065)	46 (0.130)	82 (0.232)	16 (0.045)	25 (0.071)	16 (0.045)	7 (0.020)	276 (0.781)
Hotel A	222	15 (0.067)	27 (0.122)	5 (0.022)	11 (0.050)	22 (0.099)	31 (0.140)	7 (0.032)	16 (0.072)	6 (0.027)	-	140 (0.631)
Average of A-E, incl.	399	20 (0.050)	52 (0.130)	9 (0.022)	21 (0.053)	49 (0.123)	88 (0.220)	12 (0.030)	36 (0.090)	14 (0.035)	4 (0.011)	305 (0.764)
Hotel Y	199	2 (0.010)	20 (0.101)	3 (0.015)	-	-	-	2 (0.010)	5 (0.025)	-	-	32 (0.161)
Hotel X	185	6 (0.032)	24 (0.130)	7 (0.037)	-	-	-	3 (0.016)	6 (0.032)	-	-	46 (0.248)

3.2.2 Employees per hotel department. - Figure 3.2.2.1 presents graphically the comparative departmental aggregation of these ratios. Figure 3.2.2.2 does the same but in addition it divides the services into those that might be considered essential, i.e., those services without which a hotel could not function; and the optional services. The essential services are considered as housekeeping, uniformed services, and management (grouped together for presentation), front office and accounting (also grouped together), and maintenance. The optional services are considered beverage service, food preparation and service, and miscellaneous services such as laundry, shops, entertainment, recreation, and touring.

The essential services understandably form a more uniform pattern than the optional services. They also illustrate both the hazards of averaging disparate subjects, and the perfectly reasonable variations to be expected in these subjects.

Hotels A, B, and C come quite close to the 5-hotel average of 0.331 employees per room for these minimal fundamental services (0.315 for hotel A, 0.309 for hotel B, and 0.323 for hotel C). If it were not for the ratios of hotels D and E, hotels A, B, and C would form a tight little group with an average of 0.316 plus or minus 0.007.

The high ratios found in hotel D can be explained by an inefficient (although very pleasant) physical plant which includes several individual cottages and extensive grounds which require larger than average housekeeping and maintenance staffs.

Hotel E, the newest hotel of the group, is plagued by the maintenance problems of a shake-down cruise and a persistently low occupancy rate.

FIGURE 3.2.2.1 The departmental distribution of employment in seven hotels, expressed as a ratio of the number of employees in each department per hotel room

(SOURCE: Author's basic data survey)

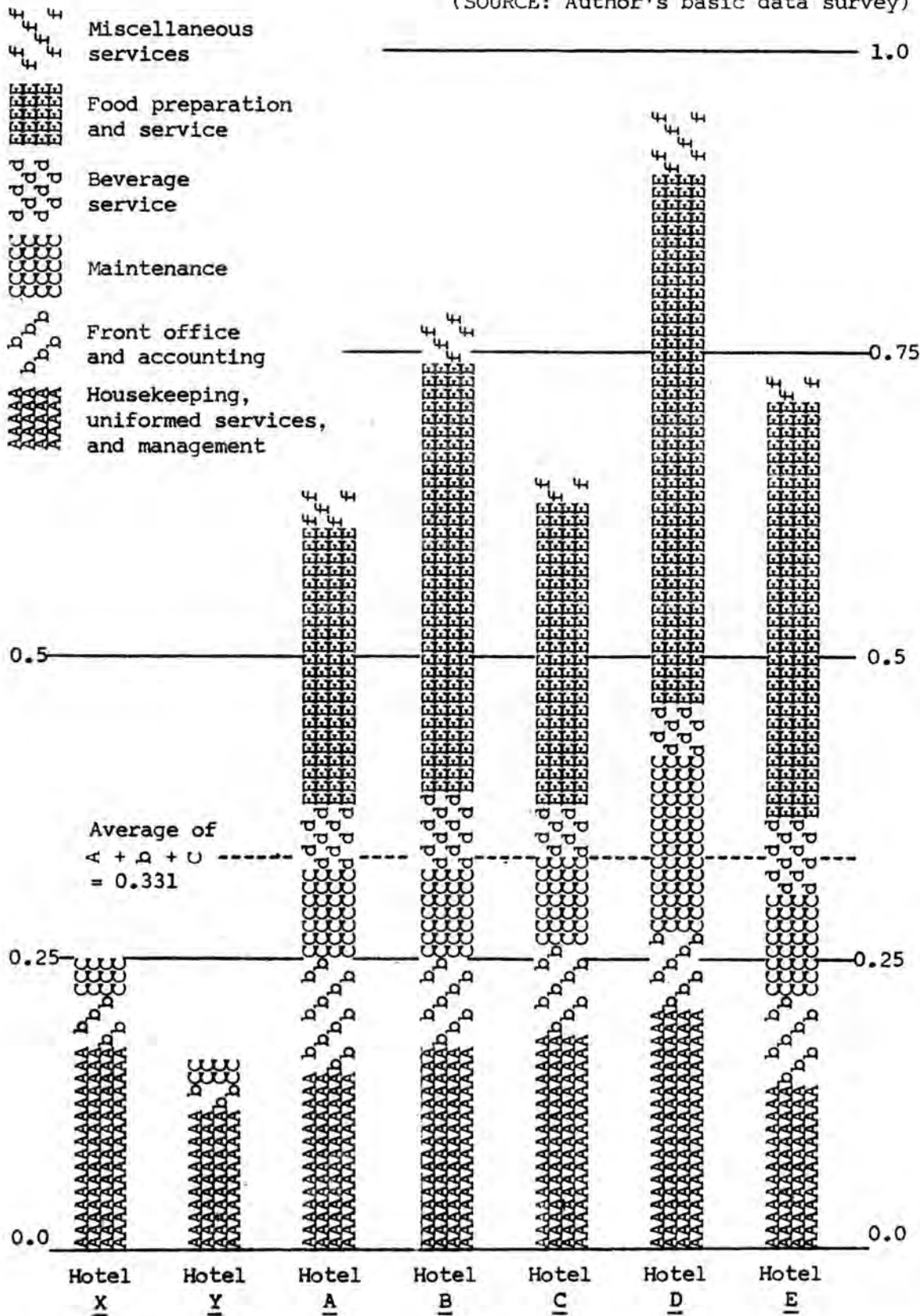
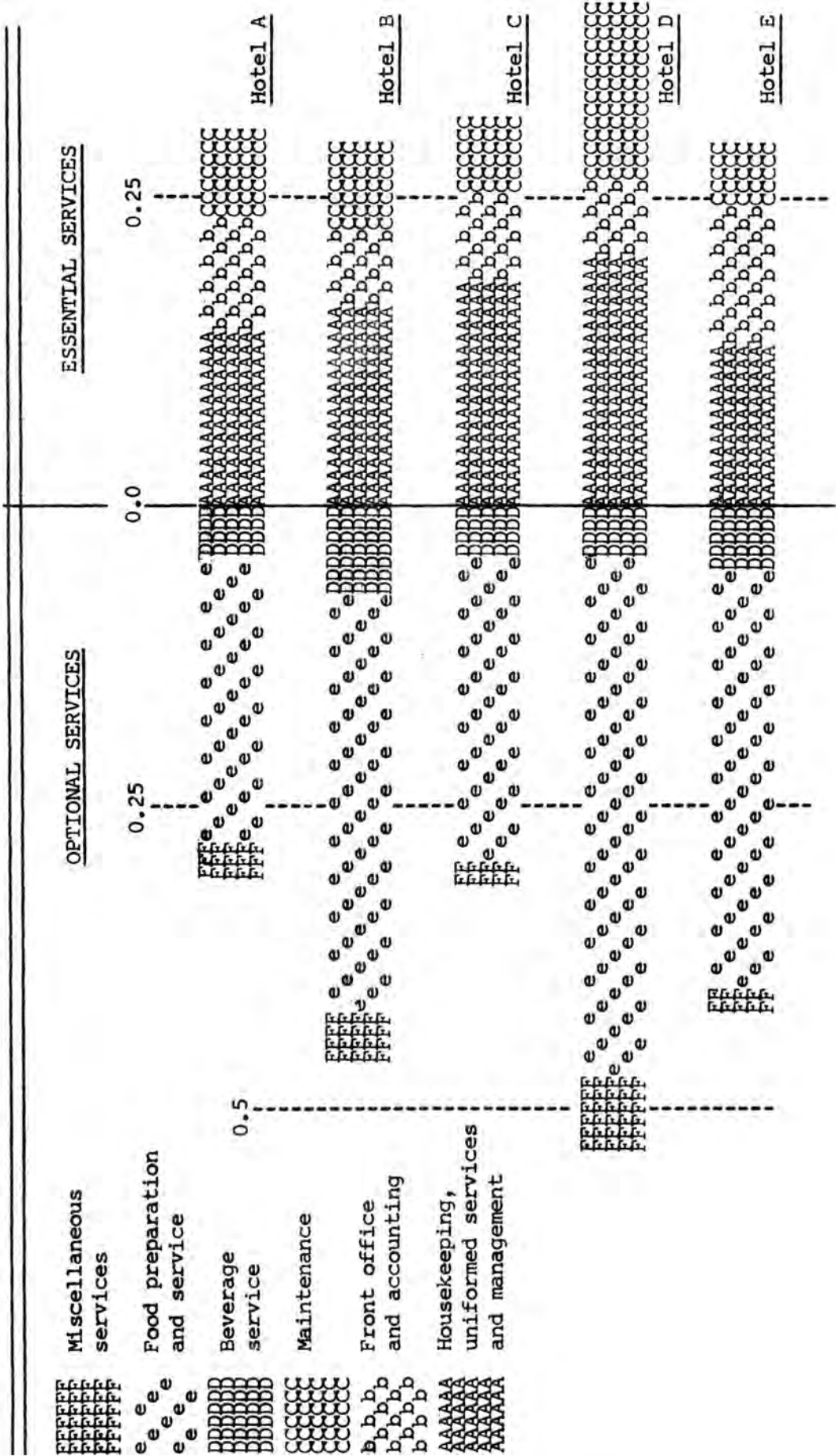


FIGURE 3.2.2.2 The departmental distribution of employment in five hotels, expressed as ratios of the number of employees in each department per hotel room



It seems from these examples that a reasonable average for the essential services might be derived from hotels A, B, and C with hotels D and E serving to illustrate the variations that might be found. These ratios are housekeeping, etc. 0.162; front office and accounting 0.085, maintenance 0.069, and the total essential services at 0.316 rather than the 5-hotel average of 0.331.

The optional services of bar and dining facilities vary in these hotels from departments employing 0.482 employees per room in hotel D, to 0.427 in hotel B, to 0.409 in hotel E, 0.303 in hotel C, 0.289 in hotel A, and, of course, 0.00 in hotels X and Y.

The variables that establish this ratio are many and diverse but the final determinant is management policy. These are the services most instrumental in determining the corporate persona of the establishment. To whom does the hotel cater? Are only the hotel residents to be accommodated? What are the non-resident demands and are they compatible with the hotel's character? Are coach tours, group bookings, or conventions to be encouraged? What segments of the industry are to be wooed: mass or class; family trade or international or cabaret or cocktail set; active or sedentary; quiet or rambunctious?

The field is broad and open. It would be impossible to set an all-purpose ratio applicable to each and every hotel in the community. It is possible, however, to establish a reasonably accurate ratio for total community demands. Whether to wine and dine its guests is an option open to the individual hotel but not to the community. An isolated hotel without the support of supplementary community facilities would have to carry the total

burden of guest care. A group of hotels, restaurants and bars could divide this responsibility but the total staff and facility requirements would be comparable - with due consideration given to losses in efficiency through duplication, the costs of providing alternative choices and a variety of choices.

The selection of these five hotels has been discussed; it is believed that they will give, on average, a realistic estimate of the community responsibility. Each community must, however, be a study in itself; the social practices of its residents must be assessed. The poverty-stricken members of a developing country's community would have a very different relationship with the hotel from that of a community of affluent holiday makers and residents of second homes. The communities of hotels A-E are a combination of these extremes plus an average American middle class. A community could be well served by an array of hotels such as these; all of the hotel guests and many of the community residents singly or in society and club groups could be wined and dined in a variety of bars, dining rooms, and night clubs or cabarets. There would be no need for supplementary independent bars and restaurants but if they appeared they would be patronized - just as the hotel is patronized by non-residents. Additional miscellaneous services would probably be welcomed and would prosper but, since they tend to create their own demand, their need cannot be appraised.

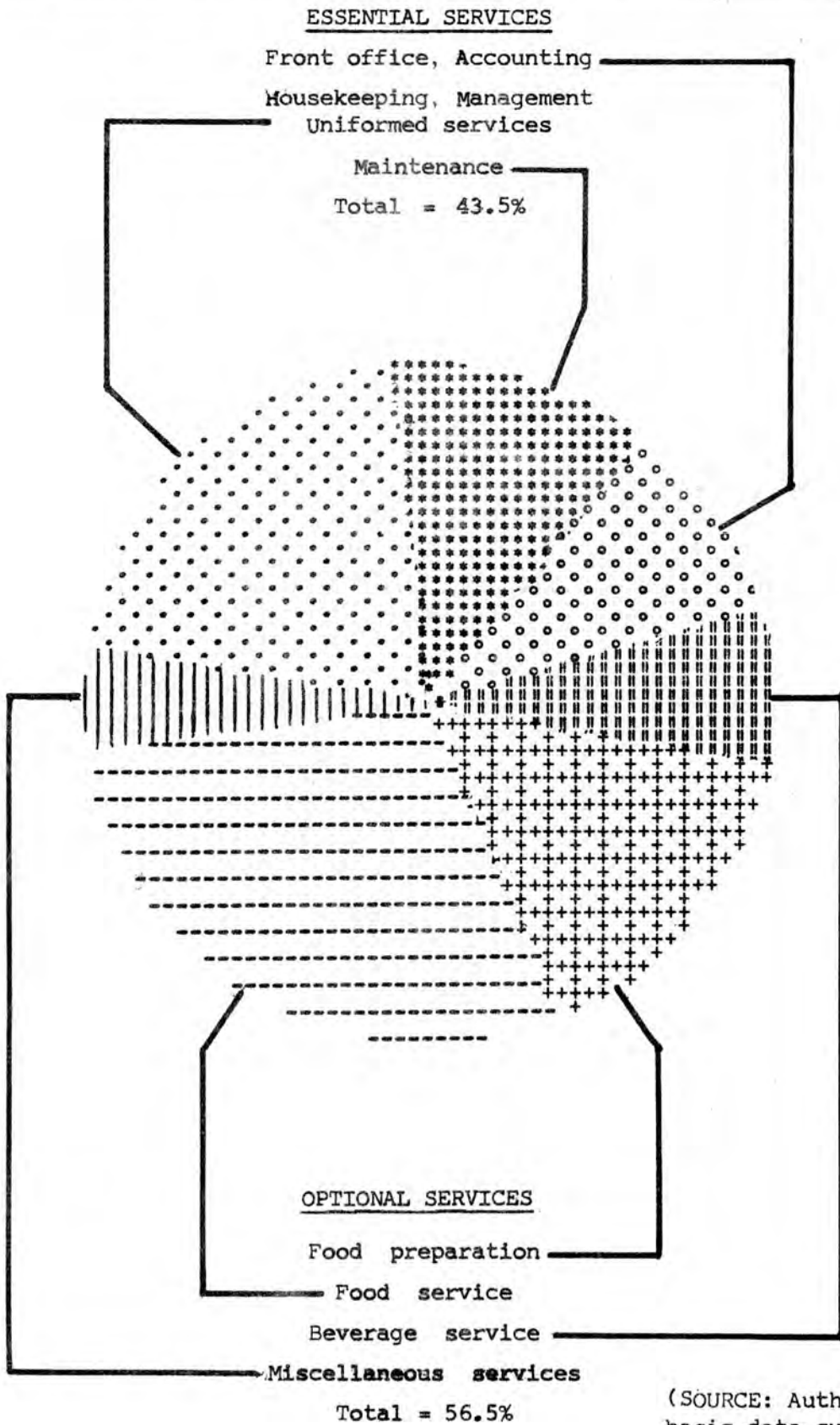
This category of miscellaneous services is open to very broad interpretation. Table A.1 lists a series of establishments that, in an urban area, would provide the goods and services listed on the same table. The employees of these establishments would not be covered by a census of the urban hotels; it is

customary to estimate their number by the use of an employment multiplier. In an isolated hotel or rural cluster of hotels, however, all the listed services might be provided within the hotel structure and might even be provided by hotel employees; thus it is obvious that the employee-per-room ratio in an urban area can be very different from that of an isolated hotel or one of a rural cluster.

Figure 3.2.2.3 underlines the degree to which the optional services will affect an average. This pie-chart shows the aggregate optional services equal to 56.5 percent and the essential services equal to only 43.5 percent of the total. Again, this is not to establish the inclusion or exclusion of services as right or wrong - as good or bad practice - but to indicate the importance of clearly defining just what the averages represent. A potential difference in kind from one sample to the next of over 100 percent is too large to be left indeterminate.

Table 3.2.2.1 and Figure 3.2.2.4 compare the departmental distribution of employees in hotels A-E with averages derived in 1970 (HAWAII DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS, 1970, p.11) that purport to represent 71.8 percent of all rooms on Oahu, 63 percent of all rooms on the other islands, and 69.2 percent of the state total. The surveyed facilities are named and may be presumed to represent an across-the-board average of both "hotel units" and "hotel apartment units". Although this is not stated, figures are given establishing that apartment hotel units in Waikiki constitute 22 percent of the total while the number of hotels of this type is 67 percent of the total number of visitor

FIGURE 3.2.2.3 Departmental distribution of employment as indicated by an average of five hotels containing 1994 rooms and 1524 employees



(SOURCE: Author's basic data survey)

plants in the area. The average hotel surveyed had 270 rooms and the average apartment hotel had only 37 rooms. Comparable figures are not given for the other islands or the state as a whole but it seems reasonable to assume that the proportion of apartment hotels would be smaller on the other islands but that the ratio would be increasing as the areas became more urban in character.

This comparison is subject to the usual problems of differing methodology and unrecognized differences in data, but it is believed that a comparison is of interest and that certain of the known differences in data might, in themselves, prove illustrative.

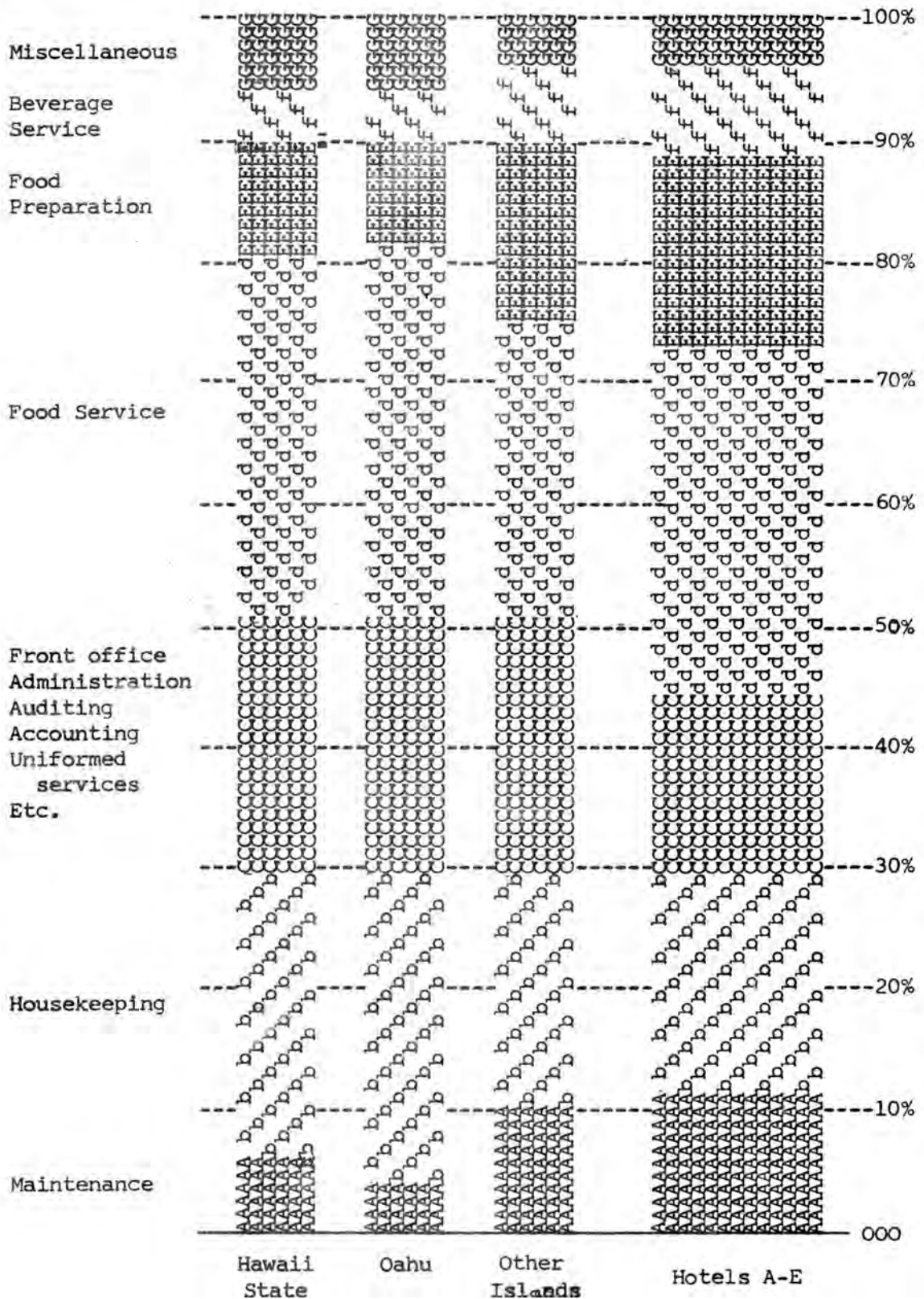
TABLE 3.2.2.1 Percentage distribution of hotel employment by departments.

	Hawaii State	Oahu	Other Islands	Hotels A-E
Miscellaneous	5.4%	6.0%	4.2%	4.6%
Beverage service	5.3	4.8	6.5	6.9
Food preparation	9.8	7.6	14.8	16.1
Food service	29.4	31.6	24.4	28.9
Front office, admin., audit'g, unif.serv.,etc.	20.7	20.5	20.9	14.8
Housekeeping	23.5	25.6	19.0	17.1
Maintenance	5.8	3.9	10.1	11.8
T O T A L	100.0%	100.0%	100.0%	100.0%

(SOURCE: HAWAII, DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS,
1970, p.11)

FIGURE 3.2.2.4 Distribution of hotel employment by departments

(SOURCE: HAWAII, DLIR, 1970; Author's basic data survey)



It has been noted that maintenance departments in rural or isolated areas tend to have larger staffs than in urban areas due to the need to be more self-sufficient and also to the generally larger grounds and more comprehensive plants and services that all require maintenance. This generality is borne out in these averages. Hotels A-E, with 11.8 maintenance employees per room are a little larger than - but reasonably close to - the other-island average of 10.1 which includes some small apartment hotels. Both of these averages are substantially above the Oahu average of only 3.9 employees per room which as stated includes the full urban range of large and small, comprehensive and limited service establishments.

Housekeeping departments have an almost precisely complementary relationship to that of the maintenance departments although the reason is not clear. The result is that the total of these two departments does not vary more than 0.6 percent between the four averages; this may be coincidental and of little significance but is noted nevertheless. The productivity of the housekeeping department, as has been noted, is largely determined by trade union regulations and could be expected to be uniform. If anything the workers in an urban and more highly competitive area might reasonably be more skilled than in an area where more in-house training of raw recruits is necessary.

The difference indicated by the averages for the front office and accounting departments can only be determined by a more detailed analysis than is possible with the limited information furnished in support of the comparative reference material.

It seems probable that this is a case of differing methodology; perhaps a difference in manner of listing certain employees. The averages for the auditing, accounting, and uniformed services are reasonably close. The difference is largely in the front office and administration departments. In hotels A-E some of the administrative posts are counted with the departments they serve; the practice in this comparative study may have been different.

The totals of food preparation and food service departments are precisely the same for state, Oahu, and other-island averages at 39.2 employees per room. The average for hotels A-E is understandably higher at 45.0 employees per room since all the hotels have dining facilities. This is perhaps closer than might be expected considering the divergence in content of the averages. While the totals seem reasonable the individual departments are puzzling. The ratio of food preparation employees to food service employees on Oahu seems inordinately high at 1:4.15. The ratio in hotels A-E is 1:1.8 and for the other-islands it is 1:1.6. The difference may be in part due to a high proportion of part-time employees (30%) on Oahu but, again, for lack of detail we cannot tell.

Comparisons of the percentages for the employees of the beverage service departments contain no surprises. The 6.9 percent for hotels A-E is a little higher than the other-island average of 6.5 and they are both above the urban Oahu average of 4.8 - again reflecting the urban competition of independent bars.

It has been stated that there are reasons why the miscellaneous category of facilities might be larger in rural areas than in urban: for the same stated reason that isolated establishments must provide services that might be provided by others in an urban location. There are other reasons that can tilt the scales to the other side. Whether provided by in-house facilities or by others, there are several categories of expenditures that the visitor prefers to make in a central area. The visitor to the outer Hawaiian Islands passes through Honolulu on his way. His hotel and travel reservations may well be paid for in Honolulu and his major purchases of clothing and souvenirs are most likely to have been made there. Estimates by the Hawaii State Planning Office have estimated that the tourist spends from \$1.75 to \$3.00 less per day on the outer islands than he spends on Oahu. (CRAIG, 1963, p.59) Little is known however of the actual spending pattern as compared to that of Oahu.

3.3 Employment composition

3.3.1 Employment composition by sex. - The status of women - both inside and outside of the labour force - has been an active issue of increasing interest. This is discussed in section 2, wherein the subject is considered as a regional or state-wide phenomenon. Here we are concerned with the micro aspects, i.e., the specific ways in which hotel employment and the community relations are affected by the male/female employment distribution. The distribution is directly affected by certain general regional characteristics discussed in section 2.

1. Hawaii has the highest female labour force participation rate of any state and it is increasing at a faster rate than the national average.
2. This increase is in all categories: divorcees, single women, married women with and without children, with and without husbands present.
3. Hawaii has a relatively very high proportion of single women and a very low proportion of women 65 years old and over.
4. Hawaii's high cost of living and her housing dearth foster the multiple-worker household. (FIRST HAWAIIAN BANK, 1973c, p.1)

These factors are particularly well matched with the unique characteristics of hotel employment wherein the female worker and the part-time worker are welcomed.

The state labour force, as listed in the 1970 census, is 59 percent male and 41 percent female while the employment in hotels and lodging places is estimated to be only 43 percent male and 57 percent female. (U.S. BUREAU OF THE CENSUS, 1972, pp.400, 401)

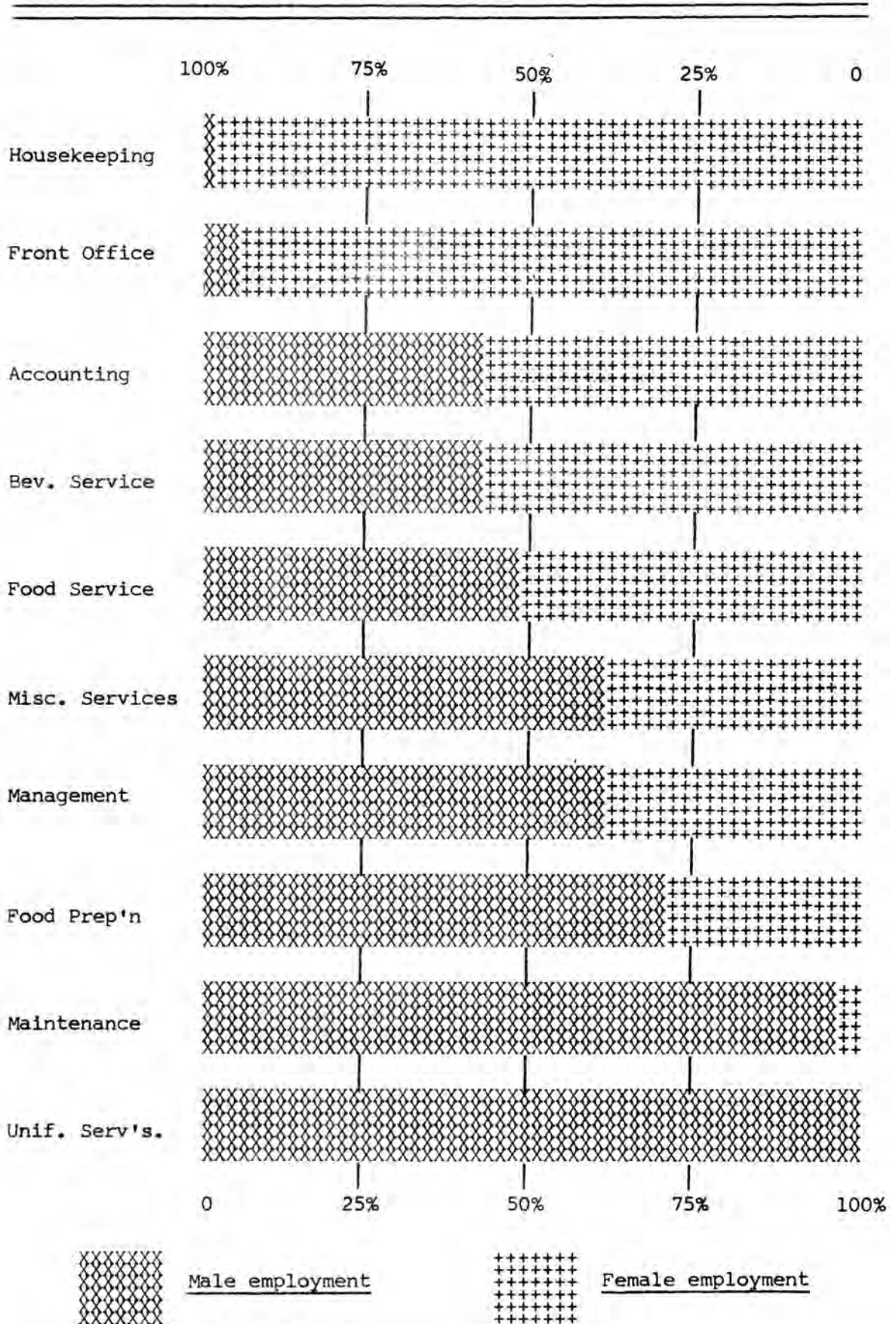
The employment in hotels A-E was found to be 53.3 percent female. This is one of the most profoundly significant factors conditioning both the nature of hotel employment and, as indicated in the following section 5.3, the effects of this employment on the community.

While this study does not examine the economics of hotel wage structure it must be noted that many hotel jobs do not attract a householder with a family but can be very attractive to a member of that family as a source of supplementary income.

The average proportional distribution by sex in each department of hotels A-E is indicated by figure 3.3.1.1. The virtually complete nature of female employment in the housekeeping department and the very nearly complete female dominance in the front office taper off through the accounting and beverage service to reach a near median point of balance in food service; from here the male takes over, gaining in ascendancy through miscellaneous services, management, and food preparation to virtual complete dominance in the maintenance department, and full occupancy of the uniformed services.

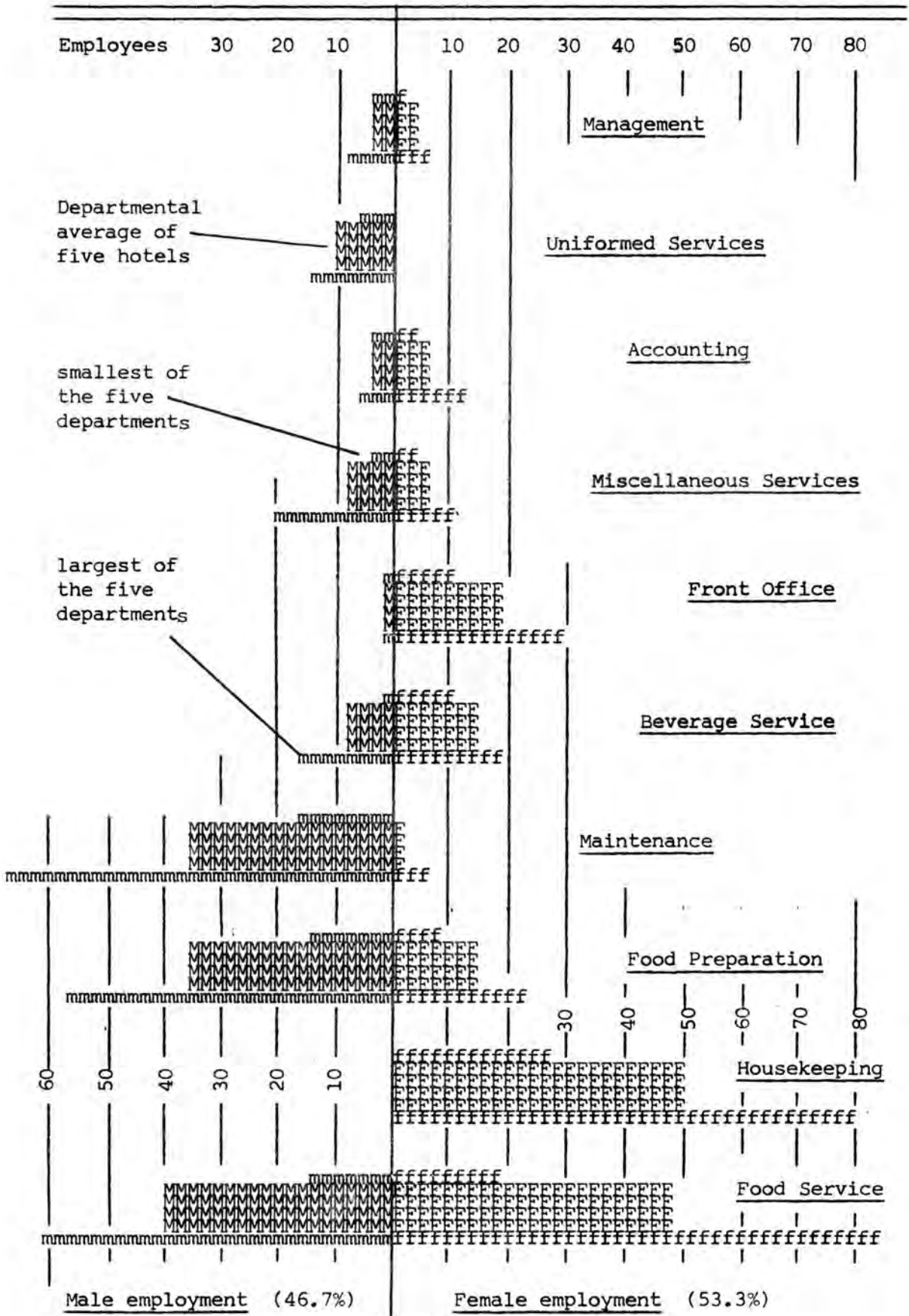
This distribution in actual numbers of employees is presented in figure 3.3.1.2 showing that the distribution of percentages, while of value in defining the nature of the departments, are of little significance in a quantitative consideration of employment and its effects. It can be seen that housekeeping and food service are overwhelmingly dominant female employers with food preparation, beverage service, and front office running a poor second and disappearing into insignificance through miscellaneous services, accounting, management and maintenance.

FIGURE 3.3.1.1 Distribution of hotel employment by sex as departmental percentages derived from the averages in five hotels with 1524 employees



(SOURCE: Author's basic data survey)

FIGURE 3.3.1.2 Departmental distribution of hotel employment by sex indicated by the numerical averages of hotels A-E



(SOURCE: Author's basic data survey)

Male employment, too, presents a different order: food service, the swing point in the percentages, being the largest employer, followed closely by food preparation and maintenance with all other departments well down the list.

3.3.2 Employment composition by age. - Table 3.3.2.1 presents in actual numbers and as percentages the distribution of the total state labour force employed in industry and the portion of that labour force employed in hotels and lodging places. The subtotals show the tendency of hotel employment toward the female; 57 percent of the hotel employment but only 41 percent of the total labour force are female.

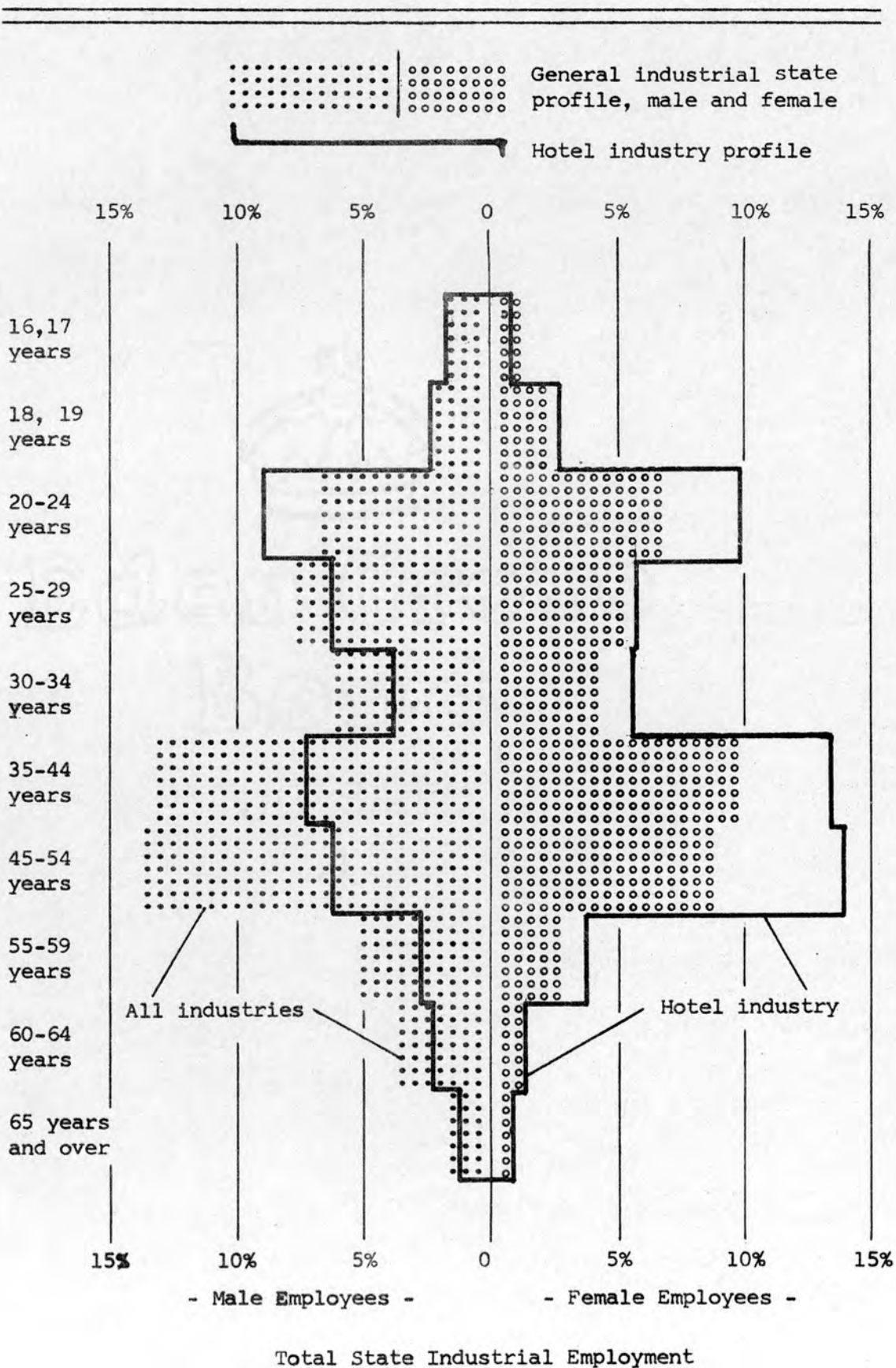
The distribution of these totals through the various age groups is shown here and in Figure 3.3.2.1. Rather an accentric set of profiles is developed. This study does not analyze the peculiarities of the state industrial profile but finds it of interest as a background against which to view the profile of the hotel industry.

The male hotel employees are most numerous in the age group of between 20 and 24 years; from here their numbers taper off until the mid-thirties when they have a mild rise through the mid-forties, dropping a little until the mid-fifties at which point they fade rapidly. The distinctive character of this profile appears to be in its above-average activity in the early twenties, and its lack of participation in the period of between 35 and 55 when it is about half the rate of the state average. It would appear that hotel employment attracts the

TABLE 3.3.2.1 Distribution of employed persons in Hawaii, 1970 (SOURCE: U.S. Dep't of Commerce, Bureau of Census)

Age	Total State Employed		Employed in Hotels & Lodging Places	
	Male	Female	Male	Female
16 - 17	3,762	2,610	178	52
	1.3%	0.9%	1.6%	0.5%
18 - 19	5,479	5,626	249	308
	1.9	2.0	2.2	2.8
20 - 24	17,991	18,864	994	1,095
	6.3	6.6	8.9	10.0
25 - 29	20,896	14,488	696	633
	7.3	5.1	6.2	5.7
30 - 34	16,885	12,010	434	625
	5.9	4.2	3.9	5.6
35 - 44	36,782	27,541	817	1,513
	12.9	9.6	7.3	13.6
45 - 54	37,927	23,931	689	1,542
	13.3	8.4	6.2	13.8
55 - 59	14,903	6,556	310	426
	5.2	2.3	2.8	3.8
60 - 64	9,557	3,172	252	135
	3.3	1.1	2.3	1.2
65 and over	4,758	1,815	137	53
	1.7	0.6	1.2	0.5
Subtotal	168,940	116,616	4,756	6,382
	59%	41%	43%	57%
TOTAL	285,556	11,138	100%	100%

FIGURE 3.3.2.1 Profile of male and female industrial workers in Hawaii as distributed by age in 1970 (source: U.S. Census of Population: 1970)



young male in his early twenties; but it would also appear that this attraction is of short duration and that he shortly thereafter transfers to some other industry.

The female profile has a similar bulge in the early twenties, tapers off between 25 and 35 years of age and then has a powerful jump into the period of between 35 and 55, far outstripping the rate of the hotel male employment and even bettering the state rate for this, its most active period. As with all the rates, the female employee retires rapidly after 55 and is in almost complete retirement after 60. This forms a completely credible pattern of the young married or single female employee leaving work during her child-bearing years and returning to help with the finances when the children no longer need constant care.

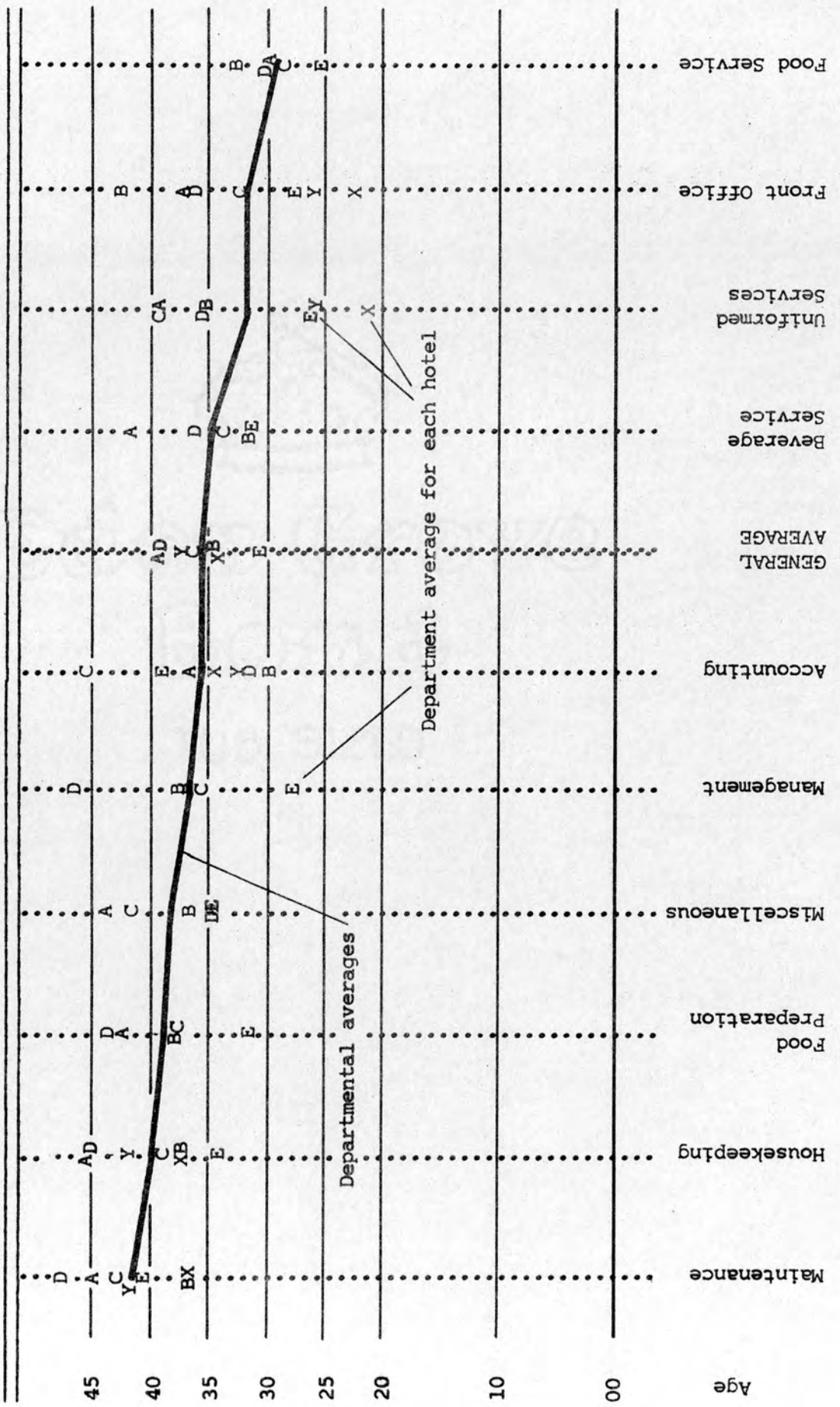
Table 3.3.2.2 shows the maximum, minimum, and average age of employees in each department of hotels A-E. These ages are not divided by sex but the general average of all ages is found to be 35.5 years, which can be compared with the state averages of 33.0 years for the males and 38.2 years for the females employed in hotels and lodging places.

These figures are transposed to Figure 3.3.2.2 with the graph line indicating the average for all hotels in each department descending from a high of 43.2 in the maintenance departments to a low of 29.2 in the food service. The letters indicate the departmental average for each individual hotel. Each department has its distinctive characteristics which tend to vary through all departments with each hotel, giving that hotel its distinctive flavour. There is a degree of consistency for each department and for each hotel. The maintenance department attracts the more

TABLE 3.3.2.2 The age of hotel employees, indicating the departmental maximum/minimum and average age found in seven hotels employing 1602 employees
(SOURCE: Author's basic data survey)

Hotel	Number of employees	Front Office	Housekeeping	Uniformed Services	Beverage Service	Food Preparation	Food Service	Accounting	Maintenance	Miscellaneous Services	Management	TOTAL
Hotel E	397	47/21 27.8	58/18 34.0	35/21 26.2	49/21 31.1	61/18 31.1	50/18 25.2	60/20 39	62/17 40.5	57/22 34.6	30/24 27.8	62/17 30.7
Hotel D	461	48/21 36.3	60/20 44.7	65/21 35.9	46/19 35.9	73/19 43.6	57/18 31.2	48/20 31.5	64/21 47.3	66/19 34.5	62/31 46.7	73/18 39.0
Hotel C	250	58/21 31.4	63/20 38.9	56/25 39.6	55/22 33.8	64/20 37.7	55/19 27.5	62/26 45.2	63/16 42.2	58/25 41.2	46/27 35.4	63/16 35.3
Hotel B	276	47/24 42.4	54/20 36.8	50/27 35.2	54/24 31.5	61/18 38.0	54/19 32.6	52/21 29.4	58/20 36.6	63.23 36.6	53.20 -	63/18 34.6
Hotel A	140	46/29 37.1	62/20 44.9	46/24 39.4	55/24 41.8	58/21 42.0	60/19 29.4	53/21 36.4	64/23 44.6	49/19 43.8	- -	64/19 39.2
Average of A-E, incl.	305	58/21 33.5	63/18 40.0	65/21 34.2	55/19 33.7	73/18 37.7	60/18 29.2	62/20 35.6	64/16 43.2	66/19 26.4	62/20 34.6	73/16 35.5
Hotel Y	32	27/25 26.0	57/23 41.5	27/25 26.0	- -	- -	- -	34/31 32.5	49/29 41.2	- -	- -	57/23 37.2
Hotel X	46	26/21 22.5	60/17 36.9	24/19 21.2	- -	- -	- -	48/26 35.5	51/17 36.7	- -	- -	60/17 32.5

FIGURE 3.3.2.2 Average employee age by departments in hotels A-E, X & Y (SOURCE: Author's basic data survey)



mature male; housekeeping, the mature female; food service attracts the more youthful male and female; each is distinctive. These departmental differences are preserved but move in fairly firm ranks up or down the scale for each hotel.

A correlation exists between employee age and mobility which, although not supportable by the data gathered here, has been noted and commented upon by management in interviews. The older the employment average, the more stable the rate of turnover. This is probably accentuated by the older employee's stress on job seniority and tenure with the advantages and the restraints of retirement programs. The younger employee may be consciously avoiding such ties and seeking to preserve his or her independence of choice.

A direct correlation also exists between the age of the hotel and the age of its employees. While this is undoubtedly coincidental to some degree, it is also indicative of a changing pattern in employment that is tending to the lower age group. The newest hotels have the most youthful employees and the oldest hotels the oldest and most stable. Age descends from hotel A, the oldest with an average employee age of 39.2 years, through hotel D (39 years), hotel C (35.3 years), hotel B (34.6 years), and to hotel E (30.7 years).

3.4 Employment Variables

In the search for significant or indicative relationships with predictive value, a few dead-end avenues were explored. Others may find with further study, in combination with additional data, or under different conditions in different places, that these apparently blocked paths will open into new and useful fields for fruitful research.

3.4.1 Occupancy rates. - It seems axiomatic that ratios based on the number of rooms in a hotel could be made more realistic by a consideration of not only the hotel capacity but the actual hotel use of this capacity, i.e., by a measure not of the hotel's potential output but its actual output.

This would introduce the hotel occupancy rate as a qualifying factor to produce an estimate of the hotel's occupied rooms rather than the actual room count as the ratio divisor. Certainly, for some purposes, a ratio of employees-per-occupied room should be a more valuable ratio than employees-per-room if a significant number of those rooms were often empty.

A priori though this reasoning may seem, in application certain difficulties apparently destroy the usefulness of the occupancy rate as a predictive variable. Although this is the conclusion of this study, others have not agreed. In an elaborate econometric model for forecasting income and employment in Hawaii, (CHAU, 1970) the definition of employment in hotels and rooming houses as an endogenous variable is determined by an aggregating of factored values for the number of hotel rooms, the occupancy rate, and a time trend variable.

The author comments that, in his opinion,

Employment is explained equally well by another plausible measure of output of the hotel industry, namely, the number of visitor days. But for forecasting purposes, the relation presented is preferable since the number of hotel rooms can be predicted with greater accuracy than the number of visitors and their average length of stay.

This preference for the predictable hotel room is largely negated by the introduction of the occupancy rate - a highly unpredictable factor. The hotel room count is predictable; the occupied hotel room count is as unpredictable as its cause - the number of visitor days. While there may be a cause-and-effect relationship between the two, the effect occurs concurrently and not with the lag of a leading indicator. There is questionable value in projecting a series of control variables if any one of them is as hard to forecast as the end product of the projection itself. (CRAIG, 1963, p.3) Occupancy is difficult to predict since it is itself controlled by highly unpredictable variables. Even the most stable of these - room capacity - is subject to explosive growth that can throw reckonings out of gear. Figure 1.2.3.2 shows an unreasonably high rate of expansion in hotel rooms in Hawaii between the years 1966 and 1968. When one looks at the accompanying rise in visitors' expenditures and the tally of visitors by number during the same period, the room increase does not seem unreasonable; there seems to be a high degree of correlation. When one sees the explosive growth of construction in the hotel field, however, it becomes clear that the drop in hotel occupancy rates, which would have been hard to explain otherwise, is a very reasonable expectation. Following the 1971 drop in building activity the room count leveled off and, with

the continued rise in the curve of visitors' expenditure, the occupancy rate found its way back to normal levels. By projecting any of the normally reliable indices one could not have anticipated the unparalleled burst of building activity and the resultant period of over-supply in hotel rooms. The burst was sparked by a non-recurring event - the passage of a more restrictive zoning ordinance and the urge to get in under the old more lenient regulations - actions beyond the usual knowledge or experience of the hotel planner and not governed by a rational consideration of the market needs.

While a projection of the room count has its difficulties, these are as nothing to the difficulties of projecting the number of visitor days. These can only be predicted by an extrapolation so obviously subject to countless exogenous variables that it must be considered as a guess.

Not only is occupancy difficult to predict on the macro scale, but on the micro or local level, as a problem of the individual hotel, it is not only unpredictable but often ungovernable. A feasibility study may indicate a need and the facilities to support it; the intentions of competitors who may arrive at the same conclusions may not be considered. A well situated facility may be placed in a very poor competitive position by a newer more elaborate or more appealing facility. New facilities that may be introduced with inadequate feasibility study harm not only themselves; an over-crowded condition affects new and old establishments alike.

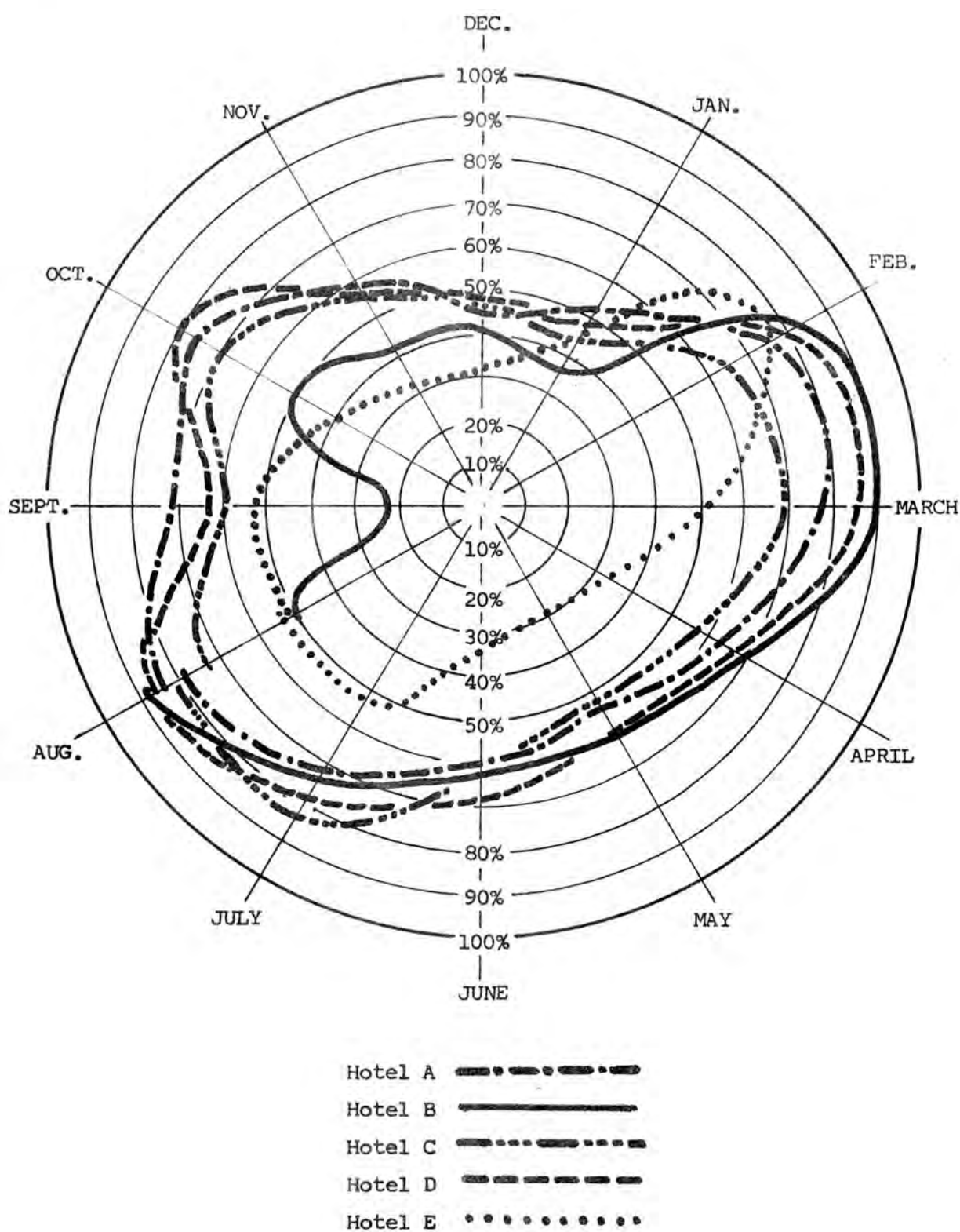
The responsibility for keeping development within reasonable bounds may devolve on the government who, if they do not accept the responsibility, may find themselves providing an infrastructure and services with an inadequate return on their investment.

These considerations are directed toward the problem of preserving an adequate occupancy rate. The introduction of such a rate into a projection for the future can only imply that the rate will vary predictably and to a significant degree. Such variations will certainly occur in short term unpredictable swings, but to assume that there will be predictable major swings implies future planning with inadequate consideration for feasibility. Surely no developer, unless his interests are completely divorced from operations, would proceed on the basis of a planned inadequate occupancy.

Despite these obvious concerns a study of occupancy rates is an unavoidable and valuable introspective practice of hotel management. For concerned government there is an unquestionable value in "comparing the performance of hotels in different areas and for examining the experience of different types of hotel" (HIGHLANDS AND ISLANDS DEVELOPMENT BOARD, 1973a, p.1) as a means of evaluating in retrospect the success of policy.

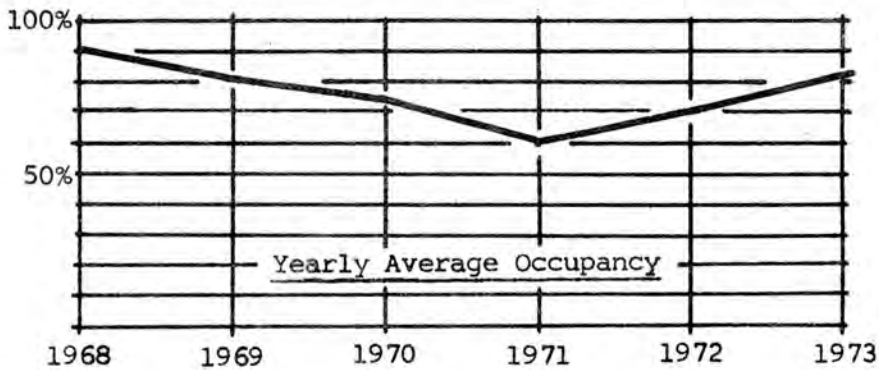
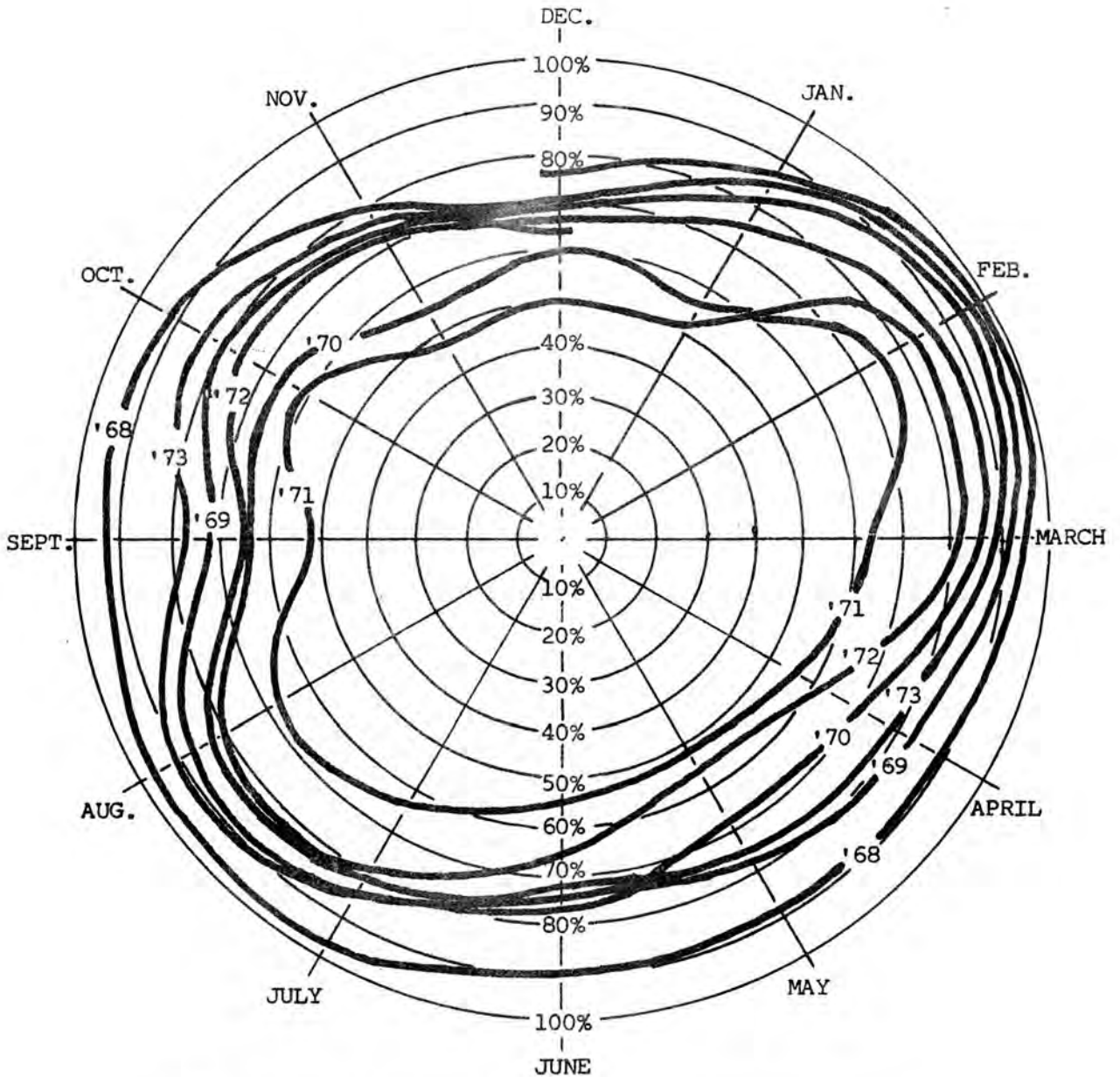
In the analysis of hotels A-E, as shown in Figures 3.4.1.1, 3.4.1.2, and 3.4.1.3, differences in the occupancy are found and in some cases these have had a measurable effect on certain phases of that hotel's employment. In retrospect these data are consistent with the performance record of each hotel but it is difficult to see how they could have been anticipated or used as guides for the future operation of the hotel. All are affected by general trends. Occasionally individual communities will be hit by special localized conditions which may be favourable or unfavourable; but it seems too much to expect of a hotel manager or planner to anticipate these shifts that can be initiated by such diverse causes,

FIGURE 3.4.1.1 Hotel occupancy rates in hotels A-E: August 1971-1972



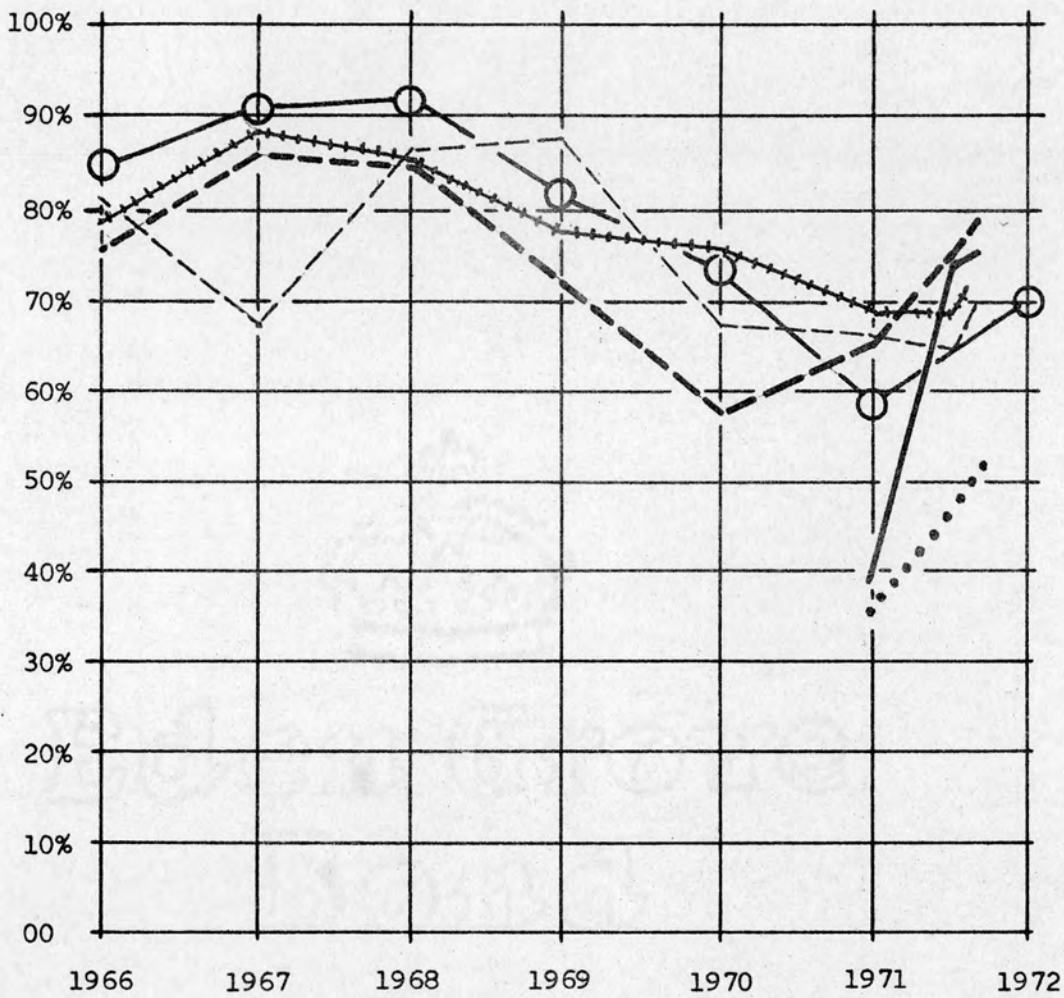
SOURCE: Author's basic data survey

FIGURE 3.4.1.2 Percentage of occupancy in Waikiki hotels: 1968-1973



SOURCE: Hawaii Hotel Association; Harris Kerr, Forster and Company

FIGURE 3.4.1.3 Hotel occupancy rates: 1966-1972



Hotel A
 Hotel B —————
 Hotel C - - - - -
 Hotel D · - - - -
 Hotel E ······
 Waikiki
 hotel
 average ○——○

SOURCE: Author's basic data survey;
 Hawaii Hotel Association (waikiki)

and to take advantage of this divination for more efficient operation of his plant. The hotel employer has his role as a planner and it is his behaviour that we examine in these data.

Both the yearly and the monthly charts show a weaving pattern of change with hotels gaining or losing on the averages: Hotel A, the oldest and the most stable of the group, following the averages most closely, starting strong but showing a tendency to lose its advantage over its younger competitors; hotel B, one of the two newest installations, starting in a year of generally poor occupancies but leaping into the group of top performers; hotel C, an erratic performer with a weak 1967 and a strong 1969; hotel D, generally following the averages but with an exaggeration of the 1968-1970 sag; and hotel E, again a late starter but with a more difficult competitive position than hotel B, finally climbing up and into the running.

While a complete running record of employment that would parallel these occupancy records was not available, an attempt was made to find factors that might level off the ratio differences between hotels to establish the effects of occupancy on employment. In other words, if hotel T has an occupancy rate ten percent higher than hotel U, do their employment ratios vary in the same degree?

No such correlation could be found. Different time periods such as the averages for three, six, nine, and twelve months occupancy periods were tested to see if a significant lag could be established between the recording of an occupancy record and the action in accordance with that performance could be established; the effort was unproductive.

It appears that management in the test area prefers to carry its personnel through the inevitable slack periods of short-term low occupancy rather than risk losing them and the investment in their training. The available data did not record the hours of work but it seems reasonable to assume that, when necessary, many of these employees would be placed on a part-time basis.

Perhaps there is no need for concern about exact equilibrium between supply and demand. Some hotels' break-even points may be as low as 50 percent occupancy and other hotels, if the land is family-owned, are able to survive for years at low levels of utilization of capacity and resources. (CHU, 1965, p.89)

HARRIS, KERR, FORSTER & COMPANY (1960, p.10) have stated a general recognition of the 70 percent occupancy level as one below which earnings are depressed and unacceptably high charges must be levied to maintain profitability.

In summary, the findings of this study indicate that occupancy rates are a valuable tool for a hotel's introspective evaluation or retrospective interhotel comparisons, but they cannot be considered dependable or significant control variables for inclusion in planning projections since:

1. By nature occupancy rates tend to be whimsical and as difficult to assess as the end product of the projection.
2. Occupancy has a questionable effect on employment that may vary with the neighbourhood conditions and with management policy, thus making cause-and-effect relationships unreliable.

3.4.2 Part-time employment. - There is little agreement on the place of the part-time worker in the economic and social scheme of things. This is not surprising since his status can vary completely from one industry to another and from one community to the next. His reasons for working as he does have not been systematically examined in any of the literature available to this study. What he does with the rest of his time is a matter for speculation; whether his motivation and life-style are typical of the community and of the employee in other industries is not known. His numbers are considerable but there is no agreement on how he should be counted in industry-wide tallies.

A study by others (HILLENDahl, 1971) of the potential demand for housing by hotel employees in the area of hotels A, E, and X, has based its estimates on the premise that "the housing requirements of part-time employees are considered to be related to their employment in other industries"; in other words they are moonlighters and the demand for housing is assumed to be "concentrated among full-time employees of hotels." Ratios are assumed for the number of employees per hotel, the percentage of employees working full-time, and the number of employees per family. A rather unusual assumption is made that "even though the head of a particular household may be employed outside the hotel industry" it is assumed that "the housing unit required by that household is related to the hotel industry if the spouse is employed in the hotel industry." (Ibid., pp.12,15). The logic of these assumptions is diametrically opposed to the findings of this study and the resultant estimate of householders is about one-third higher; this would have been greater had not the assumed ratios represented apparent differences in over and under-estimation that fortuitously cancelled.

These assessments reflect the generally accepted persona of the part-time worker: the moonlighter earning supplementary income, the housewife adding to the family income, or the student with a book propped open over his scullery sink or turning lathe. These are considered the froth and not the substance of the work force; the full-time worker is considered the householder, the responsible taxpayer who determines the place of residence of his household. These concepts are certainly valid under certain circumstances and in certain places but an alternative reality is indicated by the findings of this study - largely through the undocumented opinions of management and employee-relations personnel. These opinions, while presented without documentation, are in conformity with the collected data.

Another review of the hotel manpower requirements in Hawaii, purporting to include employment statistics for 71.8 percent of the hotels on Oahu, 63 percent of the neighbor island hotels, and 69.2 percent of the total state inventory, lists its findings in each hotel department for each island area for both full and part-time employment as shown graphically on Figure 3.4.2.1. As an indication of the critical breadth of this group, it is indicated that these part-time employees constitute 25 percent of the total hotel employment on Oahu, 20 percent on the neighbor islands, and 23 percent of the state total. There is a spread between departments varying from 0.7 percent part-time employees in the administration and general departments on the neighbor islands to 35 percent part-time employees in the food service departments on Oahu. After this meticulous preparation and presentation these most valuable data are then peremptorily given a negative

factoring of 50 percent; without explanation part-time workers (working less than 80 hours per month) are arbitrarily halved in aggregate totals. (HAWAII, DEPARTMENT OF LABOUR AND INDUSTRIAL RELATIONS, 1970, p.11) The implication here is that, since these workers are working only half-time, they are doing no more than half a job and could be replaced by half as many workers working full-time. This may have seemed a valid assumption to its authors but would not apply to hotels A-E and X,Y. Again, the continuous character of Hawaii's tourism should be emphasized. Part-time employment is not the seasonal phenomenon found elsewhere; it is not a deciduous creature but an integral part of a perennial pattern. The action is not so much one of regularly predictable tides as of an irregular wave pattern that may occasionally rock the boat but seldom reaches the troublesome scale of a tsunami.

In Hawaii a distinction is made between the part-time and the supplemental employee. The part-time employee works regularly on a predetermined schedule of at least thirty hours per week. He is governed by both union and management regulations; he is considered as much an established employee as if he were working full-time. As seen in figure 3.4.2.1 part-time employment is most common in the food and beverage service departments where the hours are not those of the usual working day, and in the housekeeping department where the need is to perform certain functions expeditiously in a limited time at and for the convenience of the guests. Full-time employment, on the other hand, is found in the maintenance, administration, and clerical departments where their services can be performed independently of the guests and the normal working day is recognized.

Supplemental employment is for the irregular worker who is not always available and for whom there is only a sporadic need. He is notified when there is work available but he and he alone decides when and for how long he will work. He is usually employed less than twenty hours per week and performs a highly valued service in stabilizing the regular employment of others through his undemanding if limited availability in times of need. His presence during times of stress makes it unnecessary to carry a staff of employees sufficient for the peaks of demand (a staff that would become a burden when activity lessened), unnecessary to subject the regular staff to the stresses of over-time work, or unnecessary for management to limit services. Since he is not employed on a continuing contract he is not subject to normal union regulations and restrictions; he is not carried on the regular employment rolls.

The familiar problem of differing definitions is seen. The above report distinguishes between full and part-time work only on a basis of the number of hours worked and limits the part-time worker to not more than half-time work (20 hours per week or 80 hours per month). In hotels A-E, X and Y, the worker who works only half-time or less is placed on a supplementary basis where he operates as an independent contractor, free of union regulation.

In this study the part-time worker is found to be performing a specific job - not a part of a job. Four bartenders working six hours per day are doing so because these are the hours during which they are needed; they could not be replaced by three bartenders working eight hours per day. Under these conditions they would presumably be over-worked for six hours and under-worked for two hours.

There are no fixed relationships between part-time, supplemental, and full-time employment; they vary completely with the demands placed on the hotel, with the labour supply, and with management policy. Certain generalities are of interest but, since only partial data are available, they are presented tentatively. In hotel B supplemental employment was believed to be less than one-third of part-time employment; in hotel C they were about equal; and in hotels D and E supplemental employment was greater than part-time employment in a ratio of about 4 to 3. For these four hotels part-time employment was estimated as 25.5 percent of total employment. To be compared with the above quoted estimates, however, it would be necessary to add a reported total of 22.7 percent supplementary employment for a total of 48.2 percent in addition to full-time employment - approximately twice the above estimates.

There is no cross-index relating the data relative to hours of employment with that for the employee's other characteristics. No data are available to indicate the total hours worked other than the general levels of division between the groups. It may be assumed that at some times all groups would work at maximum levels with part-time workers recording longer hours than the normal full-time worker. Neither this or any other available report indicates how part-time workers are distributed by sex, how many householders are involved, or how many might hold other employment. If a distinction is to be made regarding the part-time worker these data are needed to give validity to the assumptions, but it is the conclusion of this report that such distinctions are not necessary and can be misleading.

These factors are presented for their general interest and as an aid to understanding of the total problem. This report, however, questions both the accuracy and the importance of this whole body of data regarding the partially employed. Accuracy is doubted since measurements are made of a constantly shifting group. Changes occur between and within hotels whose methods and quality of measurement are not consistent. Measurement in one sector is seldom related in time to measurement in another sector. Information on double employment, now based on surmise, could be obtained only by a direct questioning of employees but such a source could well be undependable. Employees have a tendency to dissemble when they sense that their answers could place their jobs in jeopardy; and such personal questions could well be so interpreted.

Placing this body of knowledge on a firm and factual basis would be an enormously complex task of questionable utility. As has been noted each hotel and each department has its own characteristics and each would require specific attention. To be of real value the project would have to be a continuing one since the relationships are transient in the extreme; and of what value would such data be?

Observation indicates that clear and reliable correlations cannot be established between full-time employment, part-time employment, supplementary employment, double employment, and the type of employee, i.e., his marital status, number of dependents, housing situation, etc. Unquestionably all types of employees are found in all types of employment. The relationships vary between communities, hotels and departments. There seems no justification for the assumptions of a clear-cut balance or meaning as implied in the previously quoted reports.

It may be that for studies of a special nature such as for one related to the hours of employment the detailed relationships of part and full-time employment would be worthy of further investigation. For this report no such need is apparent; since these divisions appear to present no workable ratios or cause-and-effect relationships of dependable value they have been followed no further.

3.4.3 Productivity. - Industrial employment is traditionally related to productivity as measured by units of output per man-hour. If a skilled crew of five workers can do the work of eight unskilled workers they presumably do so and are paid accordingly. A study of hotel employment should, it would seem, involve an analysis of this basic quality but it seems never to be mentioned. One finds discussion of job training and retraining - both by government and industry - but this does not seem to be related to a quantitative analysis of employment. It may be that, as in the hotels selected for this study, the trainees are not listed in employment rolls, or their numbers may vary so little that, as a common constant, their effects are uniform through the ranks of hotels and need not be considered.

In practice the great leveller of productivity, that raises or lowers each worker to substantially the same plane, is the standard of performance established by the worker's union in negotiations with the employer. It may be agreed, for instance, that within the housekeeping department a maid should be responsible for the care of 14 to 16 rooms per day. For an eight-hour day this allows about thirty minutes per room. An experienced worker may be able to loiter and an inexperienced worker may have to scurry but

they will both be paid for a full day. If they are on a part-time basis or are supplementary workers they may do less; if they do more they may be paid for overtime.

Special conditions may occur: hotel D has physical characteristics including a number of individual cottages that require larger than average maintenance and housekeeping staffs. Such conditions are not difficult to identify and it should be possible to anticipate such oddities that may affect productivity - otherwise the subject is accepted as of more interest and significance to the hotel manager than to the planner.

3.5 Trends and conclusions. - Unquestionably basic changes are appearing in the nature of the hotel employee. The change is still progressing so no definite conclusions can be stated, but management opinions and those of labour unions are in agreement with the data from personnel files: a trend exists.

The character of a hotel is not always predetermined by rational policy decisions. Often the operation will be in other hands than those of the original developer. The nature of both a hotel's clientele and its personnel may not be as originally planned or anticipated.

Employment characteristics vary not only with the job demands but with the nature of the labour supply; a job may be tailored to the worker's abilities and nature. Basic rules may be relaxed or reinforced; new concepts of operation may be introduced. New jobs may be created while others may be eliminated or combined. Intelligent management adapts itself to the realities of availability.

Basic shifts in the nature of the available labour supply are resulting from the changing attitudes of the younger workers entering the work force. In The Greening of America (REICH, 1972) a "third reality" is identified which is pictured as a revolt against the work ethic of the "first reality" and the corporate loyalties of the "second reality". Whatever one's philosophy there is a considerable group who have adopted a life style that is not dictated by a compulsive conformity with the values of their elders.

Webster defines the dropout as "one who drops out (as of high school)". (MERRIAM-WEBSTER, 1967, p.255) The act of dropping out can be expressed in many ways and it can appear not only as a parting from school but as an attempted release from all economic and social pressures. Hawaii's beaches and remote valleys know these latter-day hermits; most are hedonists and, while many are simply lazy, there are those who have completed advanced educational programs and some who have left established professional positions. The actions of these are a positive searching for a better life, a pause for reflection not a final dropping out.

Hotel employment - and in particular part-time hotel employment - offers a unique opportunity to the recluse for a return to society. The chosen way of life may be continued with a minimum of disruption while earning enough to make the life-style feasible and even acceptable, if grudgingly, to the followers of the work ethic or the company man.

Today the hotel enlisting employment on the west coast of Hawaii, the north coast of Oahu, or other areas that attract the young transient, finds a very different applicant from the one that applied ten years ago. The hotel then filled its positions with the area residents from the traditional working class. The hotel problem was that of training personnel who might have a language problem, perhaps had never eaten with a fork - to say nothing of preparing and serving a multi-impliment banquet. They might have been humble and subservient; they were almost surely trustworthy, loyal, helpful, friendly, courteous, kind, obedient, cheerful, thrifty, brave, clean, and reverent.

Today the employment office finds its vestibule crowded with a lounging throng of relaxed youths from the nearby beaches and communes. They need little more than a uniform, a statement of management policy, and perhaps a shave and haircut. They consider themselves the equal and perhaps the superior of their employers, and certainly of his guests who must pay to share the life-style that they enjoy and for which they are paid. For them part-time employment may be preferred; an evening shift of washing dishes, serving drinks and food, or entertaining may give them a subsistence and leave their days free for surfing, lounging, loving, and discourse. They can prove able servants although their attitude may be more that of a host. They may not have the local colour of the local resident employee but they can get on well with the visitor who perhaps envies his apparently idyllic life and with whom he can share a degree of empathy.

Typically this employee has been characterized by management as (technically) a householder who will be dependent on this employment for remaining in the community. He will require housing and community services although his wants are simple; the household analysis to follow indicates that he has fewer children than the community average householder, and he probably shares his quarters with another or with others. Employment may be responsible for attracting him to the area or it may be serendipitous; in either event he is more self-determined than his son-of-the-land predecessor. He has chosen this place and this employment of his own free will; he should be a contented member of the community even if intractably independent. The community is different since his coming and the planner must reckon with his presence.

Specific data regarding 1,602 employees of seven hotels with a total of 2,378 guest rooms and other facilities have been collated, correlated, analyzed, and presented in different forms. It is hoped that these will be of value in many ways beyond the specific applications that are explored later in this study. It is particularly hoped that an increased understanding of the unique and complex nature of hotel employment has been gained, together with a greater appreciation of its structure and relationships. It cannot be hoped that all of these relationships will be explored here. Even if such were possible for the relationships as they exist in the geographical area of this study, it is realized that the universal diversity of conditions would multiply these to a literally unlimited variety of targets. It may seem inconsistent to hope for clarification by involvement in complexity but it is believed that the complexity exists and that only through a clear definition of it can an understanding and

a subsequent simplification be achieved. An analyst might be rightfully accused of muddying the waters while dipping for a sample but that sample may justify his action.

In an effort to understand the implications of the data, various aspects of the examined employment have been combined in different ways, compared, contrasted, and overlaid. Each department has been seen to have its distinct nature; the total aggregates give the hotel its character. There is no obvious or fixed inter-departmental relationship between factors such as the distribution by sex or age, full or part-time employment. No matter how they are charted or related a tangled web is woven - each with its own pattern and its own set of corollaries, causes, and effects. Each must be understood and assessed.

Food service, food preparation, beverage service, and the management-clerical departments are all mixed bags as to their male-female ratios, and generally indeterminate in their age and part-time employment features. The only outstanding characteristic in these groups is the low average age of the largest department: food service, which is evenly split between male and female employees.

Of the major departments the most distinctive groups are the two with the highest average age: housekeeping and maintenance. This is the only shared characteristic; housekeeping is dominantly female and maintenance is just as clearly male; housekeeping has a fairly high proportion of part-time workers (22-29%) while maintenance has the lowest (9%) of any department.

These characteristics are those that bear directly on employment, involving the employer and the employee in their

intra-mural relationships. Data regarding the relationships between the employee and the community, i.e., his marital and residential status, and his dependents, are presented and considered in the following section, together with an analysis of the way in which these are in turn affected by the intra-mural relationships and characteristics.

4. THE HOTEL EMPLOYMENT COMMUNITY

4.1 The Primary Beneficiaries of Hotel Employment

- 4.1.1 The householder
- 4.1.2 The spouse of the householder
- 4.1.3 The dependent children of the householder
- 4.1.4 Summary

4.2 The Secondary Beneficiaries of Hotel Employment

- 4.2.1 The married female employee
- 4.2.2 The male spouse of the female employee
- 4.2.3 The dependent children of the female employee
- 4.2.4 Employees living in the households of others
- 4.2.5 Independent households sheltering hotel employees
- 4.2.6 Summary

4.3 Community Analysis

- 4.3.1 The average community
- 4.3.2 Community diversity
- 4.3.3 Departmental characteristics and influences
- 4.3.4 Summary

4. THE HOTEL EMPLOYMENT COMMUNITY

For the purposes of this analysis the following distinctions and classifications are recognized:

The hotel community is considered that sector of the total community that depends, completely or in part, on the benefits of the income injected into the community by the hotel; it may be divided into:

1. The direct beneficiaries who are actually employed by the hotel, and the families, dependents, and households who are supported in whole or in part by these employees.
2. The indirect beneficiaries who benefit by the provision of the goods and services required by the direct beneficiaries.

This analysis of specific data gleaned from selected representative hotels must limit its investigation to a consideration of only the direct beneficiaries. A comparable collection of data to support studies in the field of the indirect beneficiaries would be of immediate value but is beyond the scope of this current thesis. Estimates dealing with these indirect beneficiaries are usually accomplished either (1) by the use of an econometric model designed for a specific region to incorporate all available and pertinent data, or (2) by an estimate based on the exercise of subjective judgment only. As with economic studies of the circulation of capital within an economy, these effects are often expressed in terms of a multiplier. Later in these studies where for purposes of comparison an estimate of aggregate effects will be of value, the use of a multiplier will be made by reference

to other studies without implying confirmation by the data available here. (figure 4.1.1.1)

Since this study will be involved with only the direct beneficiaries no further reference will be made to this distinction. All beneficiaries, unless otherwise stated, will be assumed to be direct beneficiaries and may be referred to as the hotel employee community.

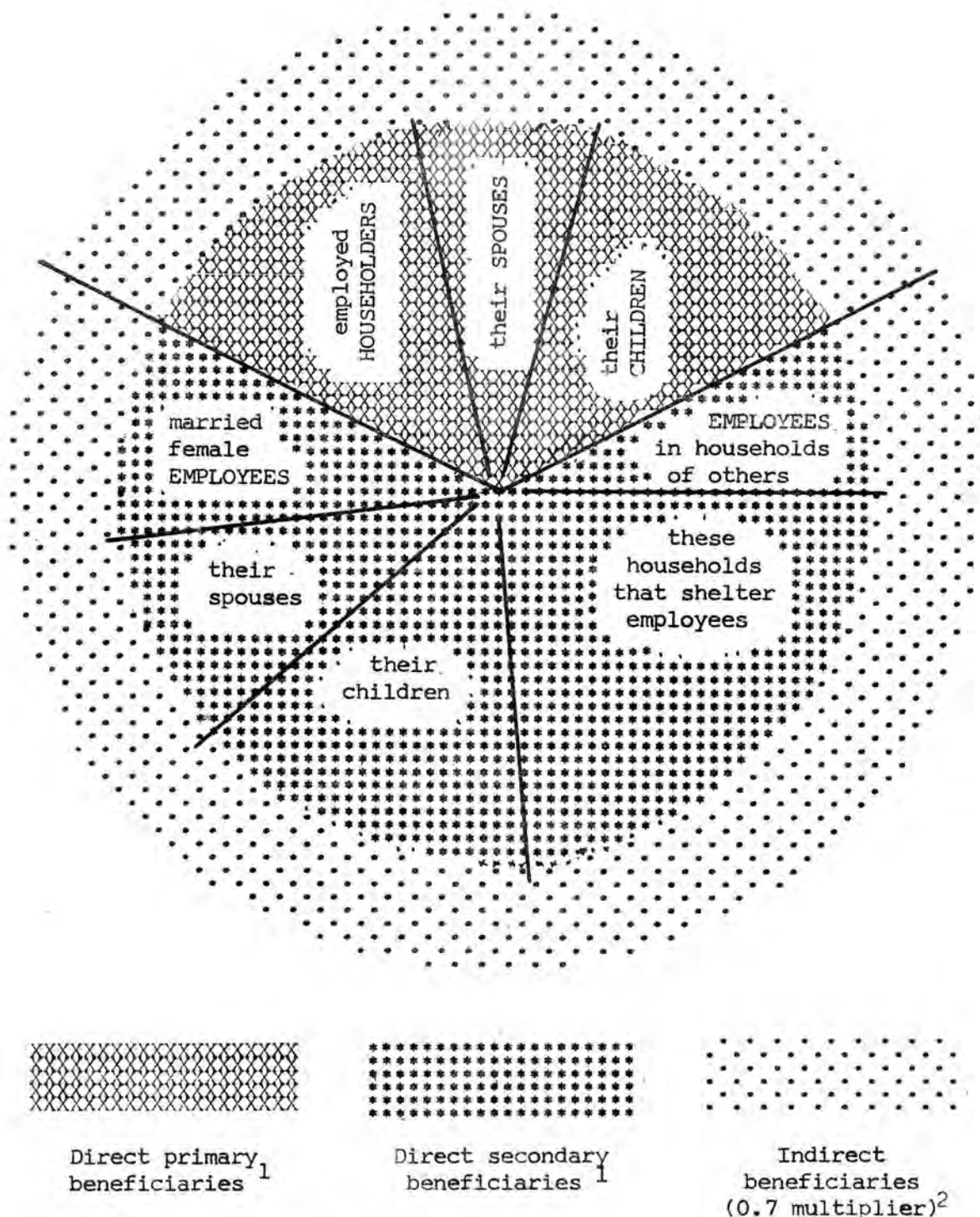
Perhaps the most significant distinction established for the purposes of this study is an arbitrary division of the hotel employee community into two classifications which will be referred to as:

1. The primary beneficiaries of this employment who depend on this income for their basic support.
2. The secondary beneficiaries for whom these benefits constitute only a supplementary source of income.

The importance of these distinctions rests on the premise that, if the local labour force is inadequate to meet the employment demands, thus necessitating the importation of labour, only those who would become primary beneficiaries will be attracted to the area as residents. The secondary beneficiaries will not be added to the community; either they have been prior residents of this hotel community or they will commute from the community from which they receive their primary income, retaining this as their place of residence. It may be assumed that the employee's place of residence is determined by his source of primary income and it will not be changed for an addition of supplementary income.

(HAWAII, DPED, 1972a, p.83)

FIGURE 4.1.1.1 The community beneficiaries of hotel employment



SOURCE: (1) Author's basic data survey

(2) HAWAII, DPED, 1972b, pp. 17, 38

On the basis of these assumptions it can be seen that to estimate the effects of employment on a community a detailed knowledge of that employment is essential; a mere tally of the number of jobs is not sufficient. Both a qualitative and quantitative analysis is needed of the number and kind of jobs offered - as in section 3 - and the number and kind of employees available.

There is a very real difference in the drawing power of different jobs. A mature male with a wife and children might uproot his household and move them for a well-paying maintenance engineering position; he could hardly be expected to do the same for the attractions of the scullery sink.

There is a very real difference in the departmental demands for community services and facilities; the requirements of that mature male with a wife and children can hardly be compared with those of a young, single cocktail waitress.

While setting the limits of this study recognition should be made of other concepts that might cause confusion if the differences are not clear. If the planning effort is toward an analysis of the total effect of tourism on a community, the problem arises of identifying all the goods and services received by the visitor and all of the establishments that provide him with these goods and services. Table A.1 presents these in the form of a goods-and-services/establishment matrix as estimated for the tourist expenditure in Hawaii. (FIRST NATIONAL BANK OF HAWAII, 1963, p.36) The portion of the tourist dollar spent for each item is allocated to the type of establishment furnishing that item. For instance, it is estimated that 32 cents is spent on food: 9.2 cents of which is spent in hotels, 13.7 cents in restaurants, 4.6 cents

in food stores, and 4.5 cents in drug stores. Similar estimates are made for the distribution of other goods and services through a range of establishments, and the accompanying division of goods and services for each establishment is made clear. For instance, hotels receive 29.1 cents of the daily dollar spent: 18.0 cents for lodging, 9.2 cents for food, and 1.9 cents for beverages.

A report for the United Nations Conference on Trade and Development, recommending guidelines for tourism statistics, recognizes several of the complications such as the difficulties of identifying the tourist, separating his expenditures from the expenditures of others, securing reliable data, and - of particular importance to their multinational clients - securing data from widely varying sources in a form that will have universal validity and utility. The "tourist sector" is defined by listing the service establishments as "branches" which "can without doubt be regarded as belonging, in different degrees, to the 'tourist sector', although they are not all concerned exclusively, or almost so, with tourism: (a) Accommodation / (b) Travel agents and tour operators / (c) Restaurants, cafes and other catering establishments / (d) Transport enterprises. . ./(e). . .specialized retail outlets. . . / (f). . .facilities for sports and entertainment. . . / (g) Government departments, public agencies. . ."

(UNCTAD, 1971, p.30)

A study of "employment opportunities created by tourism development" in Hawaii uses the terms "tourism and tourism-related industries" that have:

direct and indirect impacts on employment. Any employment category that continuously provides goods and services to a predominantly tourist market may be classified as directly tourism-related. Obvious examples are the hotel industry, amusement and recreational services, food and beverage industries, auto rental agencies, among others. Because the visitor industry is an all encompassing one, it cuts a broad path through many sectors of the economy. There are many other industries which exist to serve the needs of the local population, but occasionally or intermittently serve the needs of a small but stable percentage of visitors as well. Such industries could be classified as having an indirect influence on tourism and hence the marginal jobs provided by visitor expenditures are classified as indirectly tourism-related.

Even further removed from direct impact on employment generated by tourism are the contributions created through secondary indirect effects. Examples: expenditures made by hotel employees help generate demand for retail clerks; construction workers relying on public transport to a new hotel project may help generate a need for additional bus lines and bus driver. The principle here is that as long as the multiplier of tourism income remains in operation, there is a diminishing effect on secondary or indirect employment. (GEE, pp.1 and 2)

A study of the hotel manpower requirements for the State of Hawaii came nearer to the technology of this analysis by examining the scope of actual hotel employment and then going beyond this to estimate the projected "hotel-related employment". This related employment included, by definition: "restaurants, night-clubs, bars and other entertainment (not in hotels); and retail stores, i.e., clothing, gifts, photo, liquor & grocery; and services & transportation, beauty/barber, etc., sightseeing; and visitor attractions, taxi auto rental, tour-bus & other; and related miscellaneous employment." (HAWAII, DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS, 1970, p.15)

All of these studies concentrate their efforts in varying degrees on the numerical effects in terms of employees and dollars; no one of them goes below the surface to examine the person of the employee and the household of which he is a part.

4.1 The primary beneficiaries of hotel employment

It has been posited that it is these employees of the hotel - dependent on this employment for their primary support - who, with their dependents, may be brought to live in the hotel community because of this employment. Community growth consists of - and is limited by - this employment sector; therefore, if from employment projections these employees and their dependents can be isolated and counted, an estimate can be made of the community growth together with its costs and benefits that will be generated by this direct employment.

4.1.1 The householder. - WEBSTER (MERRIAM-WEBSTER, 1967) defines the householder as "one who occupies a house or tenement alone or as the head of a household", and the household as "those who dwell under the same roof and compose a family". (p.403) A tenement is defined as "a house used as a dwelling: residence" and also as an apartment, flat, or tenement house. (p.909)

From these definitions a census of householders would constitute a census of occupied dwelling units. This would include males or females, the married or single, and those with or without children, who represent each a single dwelling unit of whatever size or complexity. Assuming that all housing demand has been satisfied, a census of householders within any group - in this case, hotel employees - would constitute a census of the housing demand of that group. Double-counting is avoided.

From the data concerning the employees of hotels A-E, X and Y, a reasonably accurate estimate can be made of the number of householders employed by those hotels. Information including

addresses of both the employee and his or her next of kin was available. From this could be determined, for instance, whether the employee was living with his or her spouse, or whether in the household of parents or others.

The status of some single employees was subject to inductive reasoning where no direct indication was given. Such factors as age, sex, race, place of prior residence, length of present residence, etc. were considered.

Where doubt existed, the choice was made on the conservative side of over-estimating the number of households. Undoubtedly some employees who share their quarters with others as couples or as members of a commune group have been tallied as householders. Whether these employees are potentially householders is of more importance than whether they are in fact occupying a housing unit by themselves.

In an analysis of the employee community, the number and distribution of householders is of limited significance until it is considered together with a description of the households themselves. Certain relationships, however, begin to emerge and might be mentioned.

On tables 4.1.1.1 and 4.1.1.2 can be seen the number of householders of both sexes and the ratio of the number of householders per room found in the employment of hotels A-E. The ratios vary through quite a wide range with the two newest hotels, B at 0.399 and E at 0.423 householders per room, far above the ratios of the two hotels, A and C at 0.24 each. Reference to table 3.2.1.1 shows that hotels B and E also have higher general ratios of employment than do hotels A and C, which accounts in part for the difference.

TABLE 4.1.1.1 Disposition of male householders by number, as a percentage of the hotel total, and as a ratio per hotel room

	Average	Hotel A	Hotel B	Hotel C	Hotel D	Hotel E
Total employment	305	140	276	250	461	397
Hotel rooms	399	222	353	389	481	549
<u>Housekeeping</u>						
male householders	0.4	-	-	-	-	2
% of total such	-	-	-	-	-	1%
per hotel room	0.001	-	-	-	-	0.004
<u>Beverage service</u>						
male householders	6.8	2	9	4	2	17
% of total such	7%	4%	9%	6%	1%	10%
per hotel room	0.017	0.009	0.025	0.010	0.004	0.031
<u>Food preparation</u>						
male householders	26.2	10	23	16	35	48
% of total such	26%	22%	24%	25%	25%	29%
per hotel room	0.065	0.045	0.065	0.041	0.073	0.087
<u>Food service</u>						
male householders	19.6	10	27	9	19	33
% of total such	19%	22%	28%	14%	13%	20%
per hotel room	0.049	0.045	0.076	0.023	0.040	0.060
<u>Maintenance</u>						
male householders	30	14	23	24	54	35
% of total such	29%	31%	24%	38%	38%	21%
per hotel room	0.075	0.063	0.065	0.062	0.112	0.064
<u>Miscellaneous</u>						
male householders	5.8	3	3	1	13	9
% of total such	6%	7%	3%	2%	9%	6%
per hotel room	0.015	0.014	0.008	0.003	0.027	0.016
<u>Administration, etc.</u>						
male householders	13.0	6	12	10	18	19
% of total such	13%	13%	12%	16%	13%	12%
per hotel room	0.033	0.027	0.034	0.026	0.037	0.035
<u>Male householders</u>						
total	102	45	97	64	141	163
per room	0.256	0.203	0.275	0.165	0.293	0.297
% of total hshdrs.	75%	85%	69%	70%	87%	70%

(SOURCE: Author's basic data survey)

TABLE 4.1.1.2 Disposition of female householders by number, as percentages of hotel totals, and as ratios per hotel room

	Average	Hotel A	Hotel B	Hotel C	Hotel D	Hotel E
Total employment	305	140	276	250	461	397
Hotel rooms	399	222	353	389	481	549
<u>Housekeeping</u>						
female h'seholders	7.9	3	7	11	6	9
% of total such	21%	38%	16%	39%	27%	13%
per hotel room	0.018	0.014	0.020	0.028	0.012	0.016
<u>Beverage service</u>						
female h'seholders	4.8	-	9	4	3	8
% of total such	14%	-	20%	14%	14%	12%
per hotel room	0.012	-	0.025	0.010	0.006	0.015
<u>Food preparation</u>						
female h'seholders	2.6	1	5	1	1	5
% of total such	8%	13%	11%	4%	5%	7%
per hotel room	0.007	0.005	0.014	0.003	0.002	0.009
<u>Food service</u>						
female h'seholders	13.2	3	13	6	10	34
% of total such	39%	38%	30%	21%	45%	49%
per hotel room	0.033	0.014	0.037	0.015	0.021	0.062
<u>Miscellaneous</u>						
female h'seholders	0.8	-	2	1	1	-
% of total such	2%	-	5%	4%	5%	-
per hotel room	0.002	-	0.006	0.003	0.002	-
<u>Administration, etc.</u>						
female h'seholders	5.6	1	8	5	1	13
% of total such	16%	13%	18%	18%	5%	19%
per hotel room	0.014	0.005	0.023	0.013	0.002	0.024
<u>Female householders</u>						
total	34.2	8	44	28	22	69
per room	0.086	0.036	0.125	0.072	0.046	0.126
<u>Total Householders</u>						
number	136	53	141	92	163	232
per room	0.341	0.239	0.399	0.237	0.339	0.423
% male	75%	85%	69%	70%	87%	70%
% female	25%	15%	31%	30%	13%	30%

(SOURCE: Author's basic data survey)

Another and perhaps more pertinent correlation appears between the number of householders per hotel and the number of employees in the male-dominant departments of maintenance and food preparation (figure 3.3.1.2). The total employees per room in these two departments (table 3.2.1.1) are, for hotel A, 0.171 and for hotel C, 0.154; while for hotel B it is 0.201, and for hotel E, 0.218. These two departments are amongst the three highest in average age (figure 3.3.2.2) and, as will be seen later, this factor of maturity has a high degree of correlation with the size of the households and the number of residents added to the community (table 4.1.3.1).

4.1.2 The spouse. - The first determinant of household size and, therefrom, the employee community, is a census of the employed householders who are married and living with their spouses. This factor separates the men from the boys; there is a definite and reasonable correlation between the number of such married householders and the maturity of an employed group as indicated by its average age.

Hotels A and D have the highest average age of the tested hotels; (table 3.3.2.2) they also have the highest ratios of married householders. (tables 4.1.1.1; 4.1.2.1) Hotel E has the lowest average age and the lowest ratio of married householders; it also has the highest ratio of unmarried householders.

There is also a clear correlation in the departmental characteristics. Of the major departments, maintenance, with the highest average age (figure 3.3.2.2) has the highest proportion of married householders (table 4.1.3.1). Food service and front

office departments with the lowest average ages, have the lowest proportion of married householders. Uniformed service, a relatively minor department, with a very high proportion of married householders and a rather low average age, is an exception that warns us against automatic acceptance of this or any other rule.

TABLE 4.1.2.1 Number and size of dependent households related to average age of hotel employees in each hotel

	Average age of hotel employees	Householders per hotel room	Percentage of householders that are married	Dependent children per employed householder
Hotel A	39.2	0.24	60	1.3
Hotel D	39.0	0.34	70	1.4
Hotel C	35.3	0.24	50	1.3
Hotel B	34.6	0.40	50	0.9
Hotel E	30.7	0.42	41	0.4

4.1.3 Dependent children. - The same sort of rationalization as that applied to the spouses of employed householders may be considered regarding their dependent children. Again there is an inter-hotel correlation evident between the number of dependents and the degree of maturity of the employees but here the distinction is even more clear; there is less middle ground. Either, as in hotels A, C, and D, with the highest average age, there is a quite high degree of fecundity, or as in the two youngest hotels, B and E, the degree is quite low.

Again maintenance, with its highest average age, has the highest ratio of dependents per householder, and food service with its low average age has the lowest ratio. The rest of the departments do not fall so readily into line. The female householders in the housekeeping department, for instance, although having the second highest average age, have only 0.87 children per householder as against 1.5 children per householder in the maintenance department. This is of course reasonable and serves as a warning against the misapplication of inapplicable ratios; 83 percent of the male householders in the maintenance department are married while the female householders in housekeeping are single or divorced. Virtually all the married females in housekeeping are not householders but are living in the households of their husbands as will be discussed in the following section.

TABLE 4.1.3.1 Number and size of dependent households related to the average age of hotel employees in the major departments.

	Average age of hotel employees	House- holders per hotel room	Percentage of house- holders that are married	Dependent children per house- holder
Maintenance	43.2	0.09	83%	1.5
Food prep.	37.7	0.08	66	0.94
Bev. Serv.	33.7	0.03	44	0.78
Food Serv.	29.2	0.10	33	0.20

4.1.4 Summary. - The householders, their spouses and dependent children - constituting that segment of the hotel employment community dependent on this employment for their primary means of support - have been treated and considered as separate entities. In the discussion of the householder it was pointed out that such an analysis was of limited significance without consideration of the dependent household. This should now be self-evident.

The number of householders is significant only as an indicator of the number of households. The type of householder is significant as an indicator of the type of household. The household is significant as an indicator of the community constitution and growth only when it is qualified as to its number and kinds by definition of the employed householders, their spouses and their children, as becomes clear in the later applications.

This interdependence is shown in the comparison of the hotels under analysis. Hotel B has a high proportion of employed householders (0.4 householders per hotel room) and a reasonably large total community dependent on the income of these householders for their primary means of support (0.97). Hotel D has a substantially lower ratio of employed householders (0.34) but a substantially larger ratio of dependent community members (1.04), due to the larger proportion of householders who are married and the resultant higher ratio of dependent children. Hotel E has the highest ratio of householders (0.42), only an average number of married householders (0.18), and, due to the smallest ratio of dependent children of any of the hotels tested, a sub-average dependent community ratio of 0.78 (table 4.1.1.1.)

A search for significant indicators that might have predictive value developed only two general correlations of which the planner should be aware. The size of the community which is dependent on this employment for its primary support, ergo the degree of community growth that may be expected due to this employment will vary with: (1) the average age of the employees, and (2) the proportion of male employees to female employees.

In considering these correlates it becomes apparent that both the hotel need and the community supply can be critical variables. Demand can be affected by management policy (such as a preference for male or female employees in the food and beverage departments), and such physical peculiarities as particularly extensive grounds or sprawling apartments that could stress either male or female employment. Each department of the hotel has its own characteristics of age and sex distribution which, as intramural relationships, determine the hotel's nature.

The broad range of these differences points up the need for a detailed knowledge of existing conditions, proposed conditions, and the conditions under which all available reference material was prepared. The margin for error is great and poorly defined references may be wide of the mark - completely inapplicable.

4.2 Secondary beneficiaries of hotel employment

This sector of the community is composed of employees who, with other members of their households, have not changed their place of residence because of this employment. The employee is not the head of the household in which he or she resides, hence does not determine the location of that residence. This employee was either a prior resident of the community or commutes to it for this employment.

This makes an identification and survey of this sector of the labour supply very important. Many jobs held by these employees are not sufficiently well paid to attract and hold a householder. If the labour supply within a reasonable commuting range cannot fill such jobs the employer may be in trouble. (HAWAII, DPED, 1972a, pp.80-85) It has been reported that, from a governmental standpoint, the benefit/cost ratio drops precipitately when labour must be imported. (MATHEMATICA, 1970b) While no comparable study has been seen of the ratio for the private sector, it is probable that the drop would be even more drastic and the results catastrophic.

If labour demands are kept within the limits of labour supply these employees can benefit the community greatly. Their earnings are almost entirely a gain to the community since there is virtually no increased demand for services beyond the usual demand for improved services.

While the pay scale may not support or attract a family it may, as supplementary income, make such support possible by a householder in a necessary but poorly paid trade - a trade, the services of which would otherwise be imported by the community and the pay lost to some other community.

Stability is increased by these employees. In the event of a business recession, employment in this sector provides a cushion or a hedge against total loss of income by the household. If this employee is put out of employment the effect on the community is not as much of a strain as is the unemployment of a householder.

4.2.1 The married female employee. - It is this group, more than any other, that gives hotel employment its unique character. This group that constitutes almost thirty percent of the total hotel employment (0.23 employees per room out of 0.76) is made up of female employees who are not householders but are the wives of householder husbands who are employed elsewhere. The one household characteristic of importance here is that the member of the household who is responsible for its primary source of income is considered the householder. It is the employment of this householder that determines the location of the household residence if the situation is not distorted by factors of housing supply and community facilities.

This report presents conditions as they are observed. It may be that a trend toward a matriarchal society will reverse this relationship but amongst the employees in these hotels the married males are at this time considered the householders and do in fact determine the place of household residence. (HAWAII, DPED, 1972b, pp.39, 40)

It has been noted that in Hawaii certain cultural and historical factors are in effect. Female labour force participation is significantly higher among nonwhites than among Caucasians. (FIRST HAWAIIAN BANK, 1973c, p.1) The dominance of the male

in the household is also noted in the nonwhite community. Again, this is subject to changes already noticeable in both the racial mix and in the attitudes of another generation.

The shift in the newer hotels to a younger employee, to the unmarried householder, and to the household with fewer dependent children has been noted in table 4.1.2.1. Since this section examines a group of spouses no comparison can be made as to a marriage trend within the group.

Table 4.2.1.1 has again arranged the hotels in the order of their age and the correlate of the employee age in the hope that time trends will be exposed. There appears to be no relationship between this order and the number of female employees. This total female employment varies with the makeup of the departments as previously indicated. The number of female spouses as a percentage of total employment does not seem to have developed a trend but, as a percentage of female employment, there is a decrease. This would seem to indicate a shift to more single female employees. The comparison of the average age of the female employees in the housekeeping department, which is all-female, shows a definite trend toward the younger employee. It may be presumed that the trends noted for the householder group are also being experienced here.

TABLE 4.2.1.1 Relationships of the female employee whose spouse is employed elsewhere

	Hotel A	Hotel D	Hotel C	Hotel B	Hotel E
Average age of all employees	39.2	39.0	35.3	34.6	30.7
Total female employment as a percentage of total employment	58%	52%	58%	51%	52%
Employed female spouses	54	167	82	63	89
as % of total employment	39%	36%	58%	51%	52%
as % of female "	66%	70%	56%	45%	43%
per hotel room	0.243	0.347	0.211	0.178	0.162
children/hotel room	0.41	0.58	0.29	0.28	0.27
Average age of females in housekeeping dept.	44.9	44.7	38.9	36.8	34.0

TABLE 4.2.1.2 The married female employee living with her spouse who is employed elsewhere

	Average	Hotel A	Hotel B	Hotel C	Hotel D	Hotel E
Total employment	305	140	276	250	461	397
Hotel rooms	399	222	353	389	481	549
<u>Housekeeping</u>						
No. of such empl's	37	17	24	38	69	35
% of total empl's	12%	12%	9%	15%	15%	9%
Such empl's/room	0.090	0.077	0.068	0.098	0.143	0.064
<u>Beverage service</u>						
No. of such empl's	7	9	3	7	11	4
% of total empl's	3%	6%	1%	3%	2%	1%
Such empl's/room	0.019	0.041	0.008	0.018	0.023	0.007
<u>Food Preparation</u>						
No. of such empl's	10	5	13	6	13	14
% of total empl's	4%	4%	5%	2%	3%	4%
Such empl's/room	0.024	0.023	0.037	0.005	0.027	0.026
<u>Food service</u>						
No. of such empl's	20	8	9	14	50	18
% of total empl's	6%	6%	3%	6%	11%	5%
Such empl's/room	0.046	0.036	0.023	0.036	0.103	0.033
<u>Maintenance</u>						
No. of such empl's	3	1	5	2	5	2
% of total empl's	1%	1%	2%	1%	1%	1%
Such empl's/room	0.007	0.000	0.014	0.005	0.010	0.004
<u>Office, m'g't., etc.</u>						
No. of such empl's	14	14	9	15	17	16
% of total empl's	5%	10%	3%	6%	4%	4%
Such empl's/room	0.033	0.063	0.025	0.039	0.008	0.029
T O T A L						
	91	54	63	82	167	89
% of total hotel employment	31%	39%	23%	33%	36%	22%
Married female employees/room	0.228	0.243	0.178	0.211	0.347	0.162

(SOURCE: Author's basic data survey)

4.2.2 The male spouse of the female employee. - With the tallying of this member of the community, the survey moves beyond the intramural personnel to embrace those who benefit directly from this employment but who, it is presumed, depend on it for secondary or supplementary support only. The status of this spouse as the head of his household has been discussed. His wife is much in demand as a member of a valuable employment group. She is of value to the community for the services she performs and also for the income that she contributes to her household - perhaps making it possible for her husband, the head of the household, to perform valuable services that, without her assistance, the community would not be able to afford.

At the time of this survey the available labour supply was coping with the hotel demands and the indirect demands of the hotel employees; importation of labour has apparently not been necessary but commuting distances have been stretched to their limits. It is this factor of commuting that confirms the assumption that the location of the household is determined by the working place of the householder. The households of this group of householders appear to be firmly enough anchored to warrant commuting distances of over fifty miles or over one hundred miles per day round trip.

No data are available for a description of this shadowy figure beyond his numbers but it may be assumed from the age trends of his spouse, and the shrinking size of his family, that he, as with the hotel-employed householder, is becoming younger as time passes and he is begetting less freely.

4.2.3 The dependent children of the married female employee (table 4.2.3.1). — Table 4.2.1.1. shows the shrinking size of this group. The older hotels, with their more stable and older employees, contribute to the support of up to 0.58 children per hotel room in addition to the dependent families of the employed householders. This ratio has been reduced to only 0.27 children per hotel room in the most recent hotels, paralleling the trends to younger employees and to fewer married employees.

4.2.4 Employees living in other households. — This group is largely constituted of those young employees who live with their parents or other members of their families. It is assumed that these households benefit from this employment but are not dependent on it, therefore it is probable that if this income were reduced or eliminated they would still live as they do without becoming community charges.

It is further assumed that, as a group, these employees are — and have been — members of the local labour pool who, by their inclusion in this employment, place no additional demands on the community for public facilities and services. This is assumed true even though, if it were not for this employment, this employee might leave the community; or because of this employment he may have returned to the community. His demands on the community, as an established member of a resident household, or as one who can re-enter such a household, are very different from the demands of

TABLE 4.2.3.1 Dependent children of the married female employee living with her spouse who is employed elsewhere

		Hotel A	Hotel B	Hotel C	Hotel D	Hotel E
Total employment	305	140	276	250	461	397
Hotel rooms	399	222	353	389	481	549
<u>Housekeeping</u>						
No. of children	65	22	45	53	114	90
% of hotel total	45%	26%	46%	47%	41%	61%
per hotel room	0.162	0.099	0.127	0.136	0.237	0.164
<u>Beverage service</u>						
No. of children	8	16	5	9	11	1
% of hotel total	6%	19%	5%	8%	4%	1%
per hotel room	0.021	0.072	0.014	0.023	0.023	0.002
<u>Food Preparation</u>						
No. of children	15	11	17	17	13	16
% of hotel total	10%	13%	18%	15%	5%	11%
per hotel room	0.037	0.049	0.048	0.044	0.027	
<u>Food Service</u>						
No. of children	38	12	21	25	103	29
% of hotel total	26%	14%	22%	22%	37%	20%
per hotel room	0.095	0.054	0.059	0.064	0.214	0.053
<u>Miscellaneous</u>						
No. of children	5	4	3	-	20	-
% of hotel total	4%	5%	3%	-	7%	-
per hotel room	0.014	0.018	0.008	-	0.042	-
<u>Office, mgt., etc.</u>						
No. of children	13	20	6	8	18	12
% of hotel total	9%	23%	6%	7%	6%	8%
per hotel room	0.032	0.090	0.017	0.021	0.037	0.022
T O T A L						
	144	85	97	112	279	148
% of total such children	100%	100%	100%	100%	100%	100%
No. of such children/hotel room	0.361	0.383	0.274	0.288	0.580	0.270

(SOURCE: Author's basic data survey)

an immigrant worker entering the community for the first time, occupying an additional housing unit and constituting a very real addition to the community population.

From this it can be seen that these employees, as with the spouses of householders who are employed elsewhere, make a considerable contribution to the community and are a stabilizing influence for a minimal cost in facilities and services. Many are students or recent graduates not committed to the industry but using it as a convenient means of support while surveying other fields; others have selected this as an opening into a chosen career. They have closer ties to the community than have the immigrant workers and are more stable residents judging from personal observations and from those reported by management.

In numbers this group is considerable; table 4.2.4.2 indicates a range of from 19% to 30% or a five-hotel average of about 25% of the total hotel employment. The variations will have various causes but in general they will be seen to be due to availability and to some individual characteristics of hotel facilities.

Figure 4.2.4.1 shows the particular attraction of the food service department for these employees. Tables 4.2.4.1 and 4.2.4.2 show that these percentages of total hotel employment of both sexes range from 7.1% in hotel A to 14.4% in hotel C. Perhaps a clearer idea of the range could be had from the fact that this represents 55% of the employees in hotel C's food preparation department, only 26% in hotel E, and the five hotels average 40%.

TABLE 4.2.4.1 The female employees living in the households of others than their own or their spouse's

	Average	Hotel A	Hotel B	Hotel C	Hotel D	Hotel E
Total employment	305	140	276	250	461	397
Hotel rooms	399	222	353	389	481	549
<u>Housekeeping</u>						
female employees	7.2	7	13	7	4	5
% of total such	20%	35%	39%	20%	8%	11%
per hotel room	0.018	0.032	0.037	0.018	0.008	0.009
<u>Beverage service</u>						
female employees	2.2	-	-	2	5	4
% of total such	6%	-	-	6%	10%	9%
per hotel room	0.006	-	-	0.005	0.010	0.007
<u>Food preparation</u>						
female employees	2	2	1	1	3	3
% of total such	5%	10%	3%	3%	6%	6%
per hotel room	0.005	0.009	0.003	0.003	0.006	0.005
<u>Food service</u>						
female employees	15.4	7	7	15	26	22
% of total such	42%	35%	21%	43%	51%	47%
per hotel room	0.039	0.032	0.020	0.039	0.054	0.040
<u>Maintenance</u>						
female employees	0.6	-	-	-	3	-
% of total such	1%	-	-	-	6%	-
per hotel room	0.002	-	-	-	0.006	-
<u>Miscellaneous</u>						
female employees	1.6	-	4	-	3	1
% of total such	4%	-	12%	-	6%	2%
per hotel room	0.004	-	0.011	-	0.006	0.002
<u>Administration, etc.</u>						
female employees	8.2	4	8	10	7	12
% of total such	22%	20%	24%	29%	14%	26%
per hotel room	0.021	0.018	0.023	0.026	0.014	0.022
<u>Such female empl's</u>						
total	37.2	20	33	35	51	47
per hotel room	0.093	0.090	0.093	0.090	0.106	0.086

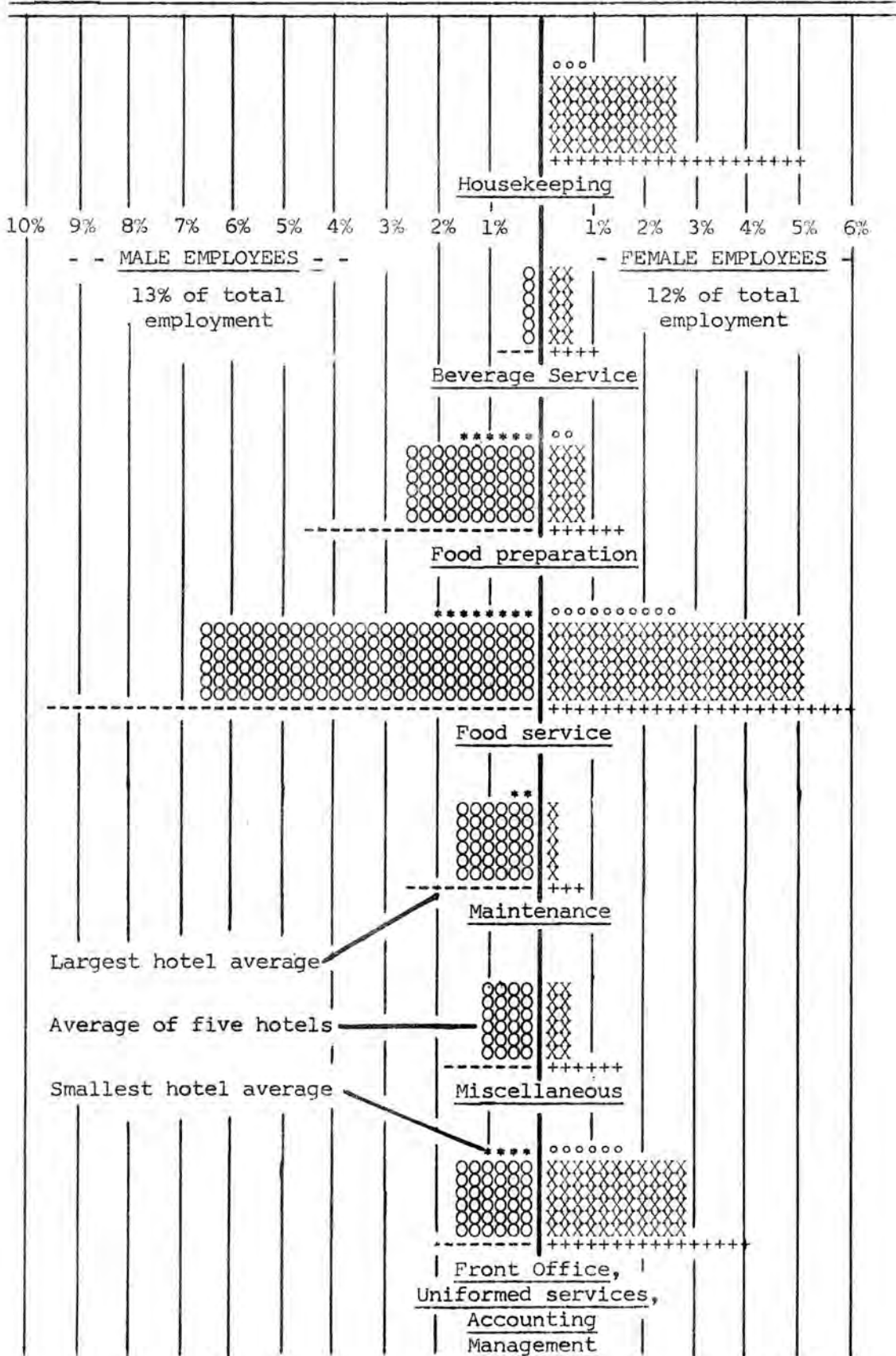
(SOURCE: Author's basic data survey)

TABLE 4.2.4.2 The male employees living in the households of others

	Average	Hotel A	Hotel B	Hotel C	Hotel D	Hotel E
Total employment	305	140	276	250	461	397
Hotel rooms	399	222	353	389	481	549
<hr/>						
<u>Beverage service</u>						
male employees	0.8	-	2	1	1	-
% of total such	2%	-	5%	2%	1%	-
per hotel room	0.002	-	0.006	0.003	0.002	-
<u>Food preparation</u>						
male employees	7.8	4	4	11	13	7
% of total such	19%	31%	10%	27%	16%	24%
per hotel room	0.020	0.018	0.011	0.028	0.027	0.013
<u>Food service</u>						
male employees	19.6	3	26	21	40	8
% of total such	49%	23%	67%	51%	50%	28%
per hotel room	0.049	0.014	0.074	0.054	0.083	0.015
<u>Maintenance</u>						
male employees	5	2	2	1	12	8
% of total such	12%	15%	5%	2%	15%	28%
per hotel room	0.013	0.009	0.006	0.003	0.025	0.015
<u>Miscellaneous</u>						
male employees	2.8	2	2	2	8	-
% of total such	7%	15%	5%	5%	10%	-
per hotel room	0.007	0.009	0.006	0.005	0.017	-
<u>Administration, etc.</u>						
male employees	4.2	2	3	5	6	5
% of total such	10%	15%	8%	12%	8%	17%
per hotel room	0.011	0.009	0.008	0.013	0.012	0.009
<hr/>						
<u>Such male employees</u>						
total	40.2	13	39	41	80	29
per room	0.101	0.058	0.110	0.105	0.166	0.053
<u>Total such employees</u>						
number	77.4	33	72	76	131	76
per room	0.194	0.149	0.204	0.195	0.272	0.138
% male	52%	39%	54%	54%	61%	38%
% female	48%	61%	46%	46%	39%	62%
% of total empl't	25%	24%	26%	30%	28%	19%

(SOURCE: Author's basic data survey)

FIGURE 4.2.4.1 Departmental distribution of the employees who live in the households of others, expressed as percentages of total hotel employment. (SOURCE: Author's data survey)



To further illustrate the individuality of each hotel pattern one can compare hotel A, with no such employees included in their total of 11 employees in beverage service, and hotel D with a beverage service department of 22 employees with 6 employees or 28% of them living at home.

In addition to the variations caused by departmental differences availability is a strong factor in establishing the pattern and the actual character of the employment. Availability is determined by both the age of the facility and its location. Age can work both ways; an older, more mature hotel has probably many employees in established positions of seniority that would tend to eliminate the younger worker; at the same time it has had the first chance to hire the local employees. A hotel, such as hotel E, that has opened in a busy competitive area with much of the local supply already engaged, must take what it can find and that may, as in the case of hotel E, include very few resident employees.

Hotel D with 131 such employees or 28% of its total is well established near a village source of supply, and in addition draws from the entire island of Kauai on the strength of its prior position. Hotel C, with the highest average of 30%, is the most urban of all five hotels and thus has both a prior position and a strong source.

4.2.5 Independent households sheltering hotel employees. - This household consists, typically, of a young hotel employee living at home with his family. The householder-parent is assumed to be other than hotel-employed. This sector may be over-estimated since more than one employee may be living in the household. An effort has been made to avoid double-counting but second marriages and the complex relationships in some ethnic groups make errors possible. Such errors are not considered significant, however, since the double-counting is not of householders and the effects of the secondary beneficiary on the community are minor.

This study has determined the size and character of the married employees' households but cannot support an assumption that this is typical of the community household, or that the households of this category are other than typical of the community. A household of 3.8 persons has, therefore, been accepted by reference to a state report, (HAWAII, DPED, 1972b, p.45) which can be compared with estimates by the 1970 U.S. Census of Hawaii of 3.59 persons per household and 3.98 persons per family. (HAWAII, DPED, 1972c, p.18) It can also be compared with the averages for the hotel-employed households of 2.5 persons per household in the primary sector, which includes unmarried householders, and 3.58 persons per family in the households of married female employees. The tables on which these are carried list the employee and the household separately so the multiple for the household is 2.8 times the number of such employees.

It is believed that the number and status of these employees is well established. Information was obtained, as stated earlier,

regarding the place of residence of both the employee and his nearest of kin; when a parent was listed and the addresses were the same, the conclusion seemed obvious. Those in question are the ones living in other than family groups. Since these are not usually included in this sector it will often be referred to as a sector of employees' families. It should be understood that this is a matter of expediency and that communes or ethnic groups if identifiable may be included.

4.2.6 Summary. - Consideration has been given to the hotel employees who are not householders but whose households benefit from this employment as a source of supplementary income. These have been divided into two groups: (1) the married female employee who lives with a spouse who is employed elsewhere and is recognized as the head of the household, and (2) the other employees who live in households of which they are not the head.

These two groups, while sharing the common characteristic of being secondary beneficiaries, are quite different in other respects. The first group, the married female employees, are heavily concentrated with 40 percent of their number in the house-keeping department (table 4.2.1.2) - the department with the second highest average age (table 3.3.2.2) and 45 percent of this group's dependent children (table 4.2.3.1). The stability of the group may be dependent on the spouse's employment more than on this hotel employment but, in general, the group is characterized by steadiness, maturity, and responsibility.

The second group, covering all other employees who are not householders, is seen to be concentrated with 45 percent in food service (table 4.2.4.1), the department with the lowest average age (table 3.3.2.2). As a group these employees are, perhaps, more stable than the young transient workers with no community ties. While these workers may not be held to the community by legal responsibility to dependencies, they have very strong family bonds and some contribute as much to family income as does the head of the family.

It has been noted that the group members who are living at home are easily identified. It has also been noted that some workers whose status is not clear have been credited to the householder group. Some of these workers, if more data were available, might be reclassified to this category of secondary beneficiaries; these would include the single workers who share quarters with others in communes, ethnic groups, or as couples. Since some of these living arrangements are illegal they are hard to trace. Many are transitory so they are classified for their potential, if not actual, status as householders.

4.3 Community Analysis

The structural concept of the community-employee relationship, as developed for the purposes of this analysis, was outlined in the introduction to this section 4. The two elements of this dichotomous phenomenon - the primary and secondary beneficiaries - have been examined as they are found in the records of employment in seven Hawaiian hotels. It now remains to put these elements together to see whether the armature and the quantitative fleshing out of its form will have a reality from which we can generalize and develop useful guides for an assessment of the actual or potential community effect of hotel employment.

4.3.1 The average community. - Table 4.3.1.1 presents a summary of the total hotel employment community of seven hotels segregated into sectors of primary and secondary dependency on this employment. All values are expressed both as the actual number of employees, and as the ratio of employees per hotel room.

The primary beneficiaries, as have been noted, are the employed householders and the members of their householders, i.e., their spouses and dependent children. These data may be presented in many ways and put to many uses developing or illustrating varying relationships, e.g., from the averages it can be seen that, for the typical hotel:

45 percent of the employed are householders.

54 percent of the householders are married.

There are 0.94 dependent children per housekeeper

or 1.77 dependent children per married householder.

(SOURCE: Author's basic data survey)
 TABLE 4.3.1.1 The community directly supported by the employment in seven hotels, indicating the content of this community in actual numbers and, in parenthesis, the ratio of these numbers to the number of rooms in the hotel

Hotel	Number of rooms	Dependent for primary support					Dependent for secondary support only							Total Community
		Employed house-holders	Their dependent spouses	Their dependent children	Total Community	Married female employees	Their spouses, employed elsewhere	Their dependent children	Employees living in other households	These other households	Total Community			
Hotel E	549	232 (0.42)	96 (0.18)	100 (0.18)	428 (0.78)	89 (0.16)	89 (0.16)	148 (0.27)	76 (0.14)	212 (0.39)	614 (1.12)			
Hotel D	481	163 (0.34)	115 (0.24)	223 (0.46)	501 (1.04)	167 (0.35)	167 (0.35)	279 (0.58)	131 (0.27)	368 (0.77)	1112 (2.31)			
Hotel C	389	92 (0.24)	49 (0.13)	125 (0.32)	266 (0.68)	82 (0.21)	82 (0.21)	112 (0.29)	76 (0.20)	214 (0.55)	566 (1.46)			
Hotel B	353	141 (0.40)	74 (0.21)	126 (0.36)	341 (0.97)	63 (0.18)	63 (0.18)	97 (0.28)	72 (0.20)	202 (0.57)	497 (1.41)			
Hotel A	222	53 (0.24)	32 (0.14)	71 (0.32)	156 (0.70)	54 (0.24)	54 (0.24)	85 (0.38)	33 (0.15)	94 (0.42)	320 (1.44)			
Average A-E, incl.	399	136 (0.34)	73 (0.18)	129 (0.32)	338 (0.85)	91 (0.23)	91 (0.23)	144 (0.36)	78 (0.19)	218 (0.55)	622 (1.56)			
Hotel Y	199	7 (0.04)	4 (0.02)	4 (0.02)	15 (0.08)	15 (0.08)	15 (0.08)	18 (0.09)	10 (0.05)	28 (0.14)	86 (0.44)			
Hotel X	185	10 (0.05)	7 (0.04)	28 (0.15)	45 (0.24)	14 (0.08)	14 (0.08)	20 (0.10)	22 (0.11)	62 (0.34)	132 (0.71)			

There are 2.49 primary beneficiaries per household
or 0.85 primary beneficiaries per hotel room,
including the householder, his spouse, and children.

These averages are for hotels A-E only. Hotels X and Y, as has been explained, offer only room service so are included as illustrations of the variations that exist but are not included in the averages.

The sector of secondary beneficiaries includes those employees and their cohabitants who benefit from this employment but are not dependent on it for their primary source of income. The employees, who are those living in the households of others, are divided into two groups: (1) the married female employees living with their husbands who are employed elsewhere and who are considered the heads of these households in which the married female employees live, and (2) all other employees who are not householders.

The other members of the community who share in these benefits, making up the remainder of this group of secondary beneficiaries, are those who share the households with these employees: (1) the spouses and children of the married female employees, and (2) the cohabitants of the other employees who, since they are usually related, may be referred to as the families.

It has been indicated that the married female employees and their households are a well-defined group, but the remaining employees, being more difficult to establish, were intentionally estimated on what is believed to be the low side. This places the questionable ones in the category of householders which is

their potential for maximum effect on the community. Their families, for lack of proof to the contrary, have been assumed to be average community families - as determined by governmental surveys (HAWAII, DPED, 1972b, p.45) - rather than the average employee family or household.

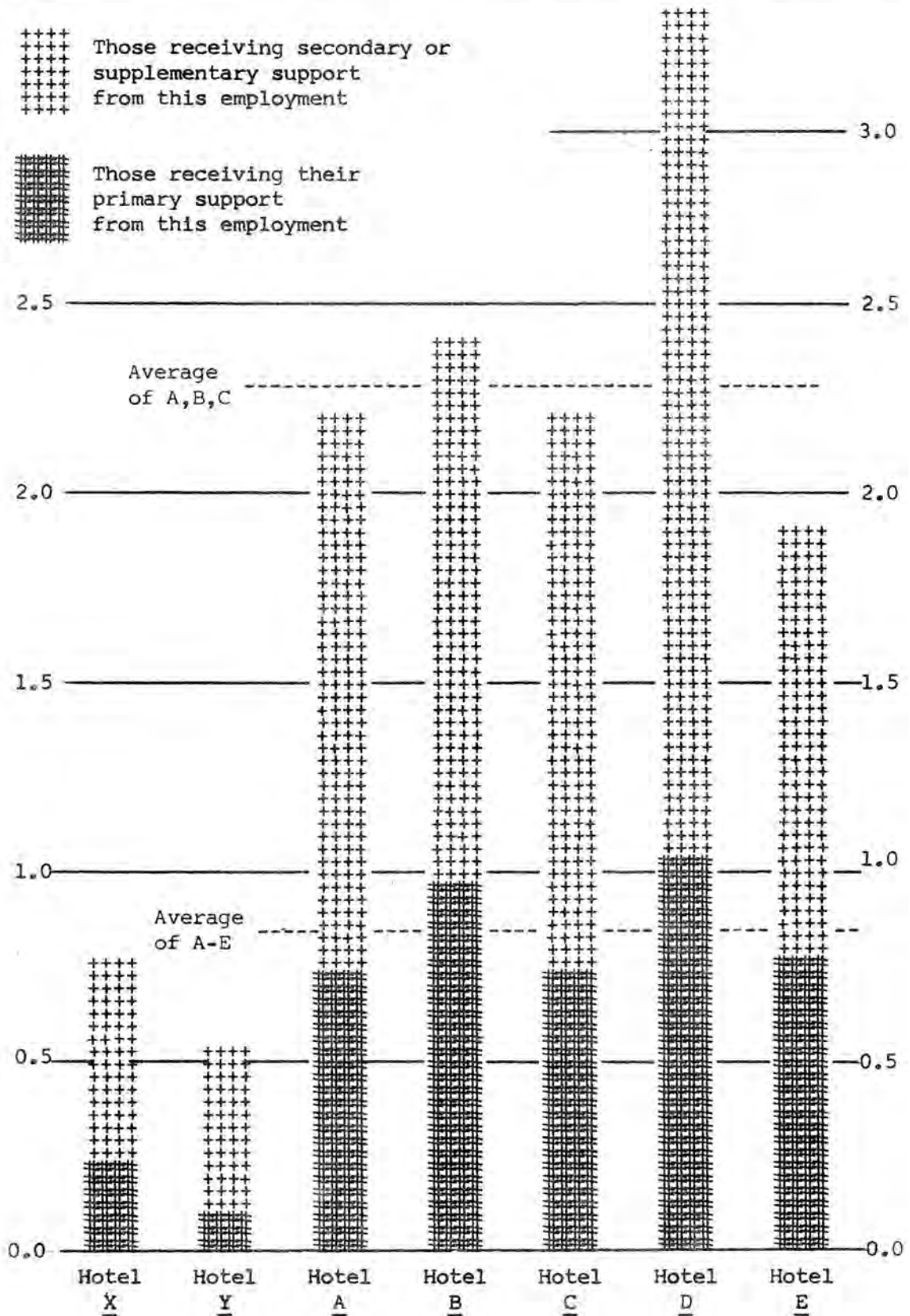
As with the data regarding the primary beneficiaries, the data on the secondary side of table 4.3.1.1 can be presented in many ways and varying conclusions can be drawn, e.g., in the typical or average hotel:

These married female employees constitute 30 percent of total hotel employment, or 0.23 employees per room. The average family of these married female employees is 3.58 persons compared with the families of 2.5 persons in the primary sector and the assumed community average of 3.8 persons.

Each employee in the secondary sector contributes to the support of 3.68 persons, compared to the primary support of 2.49 persons per employee in the primary sector.

4.3.2 Community diversity. - The aggregate hotel community, composed of both the primary and secondary beneficiaries, is presented in figure 4.3.2.1. A striking feature of this illustration is the inordinately large variation in the secondary sector compared with the relative stability of the primary sector. The difference between the largest secondary sector, hotel D, and the smallest secondary sector, that of hotel E, is equal to 1.19 persons per hotel room or a total variation equal to 76 percent

FIGURE 4.3.2.1 The community directly supported by the employment in seven hotels, indicated as ratios of the number of beneficiaries per hotel room (SOURCE: Author's basic data survey)



of the average secondary community of 1.56 persons per room. This can be compared with the variation between the largest primary sector, again hotel D, and the smallest primary sector, hotel C, a difference of 0.36 persons per room equal to 42 percent of the average primary sector of 0.85 persons per room.

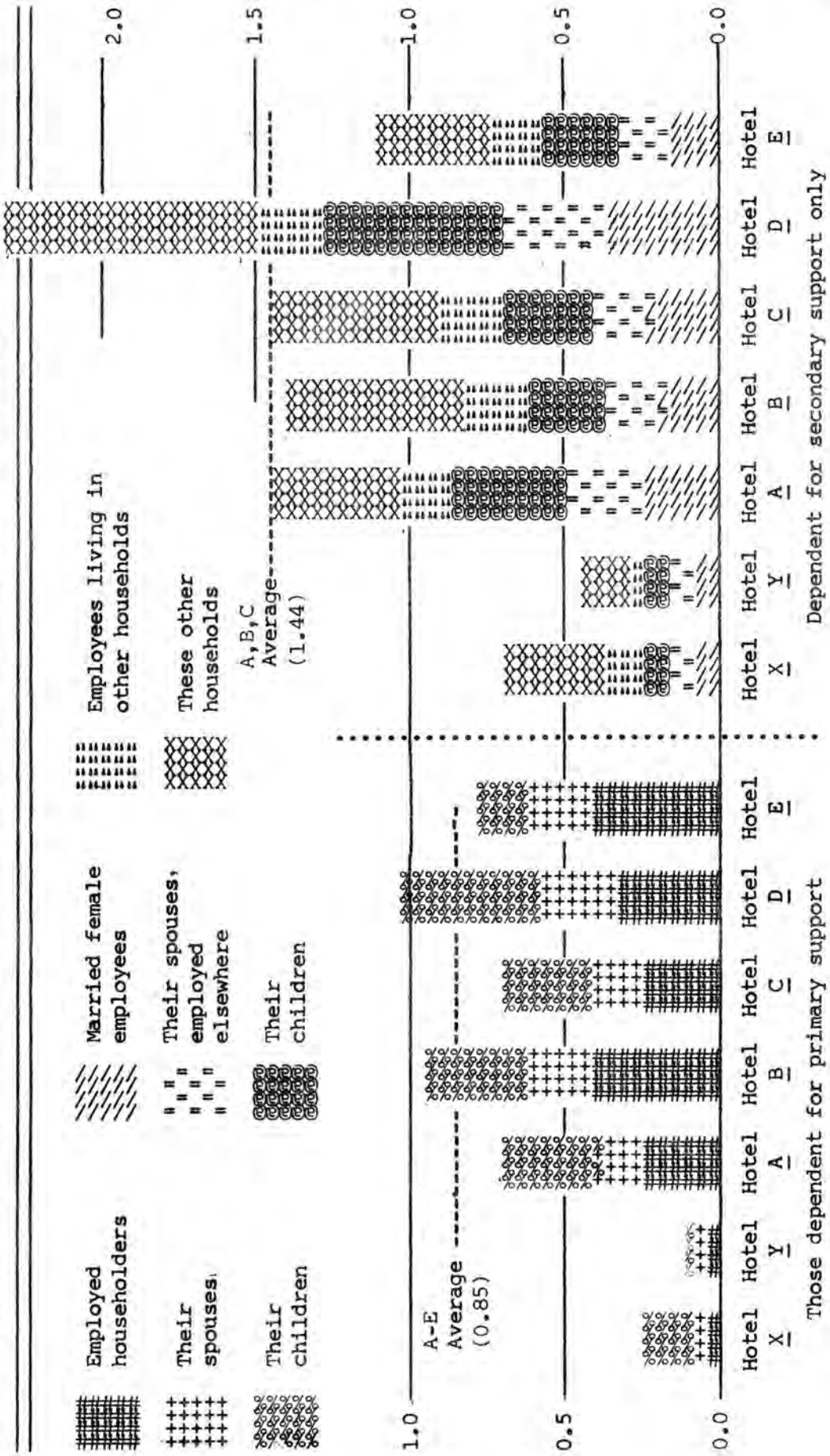
These differences are large enough to hope for explanations that could guide the planner in his selection of ratios that will come close to the mark - adjusting the averages if necessary to reduce the margin for error. The reasons for variation are diverse; some appear to have a high degree of predictability, if the planner knows what community and management characteristics to investigate; others are less predictable. The individual nature of each region, subregion, and each set of management policies must be appreciated.

Figure 4.3.2.1 graphically demonstrates the total community effect as tabulated on table 4.3.1.1. Figure 4.3.2.2 moves into an investigation of these totals and a search for causation by visually dividing the primary from the secondary sector, and breaking each of these down into its constituent parts. These expose some part and total relationships more obviously than do the ranked figures in the table. When we consider the proportional division of these totals as on table 4.3.2.1 we see which elements are responsible for the variations and to what degree.

TABLE 4.3.2.1 Proportional division of the hotel employee community as percentages of each total sector.

	Average	Hotel A	Hotel B	Hotel C	Hotel D	Hotel E
<u>Primary Sector</u>						
householders	40%	34%	41%	35%	33%	54%
their spouses	22%	21%	22%	18%	23%	22%
their children	38%	45%	37%	47%	44%	24%
<u>Secondary Sector</u>						
married female employees	15%	17%	13%	14%	15%	14%
their spouses	15%	17%	13%	14%	15%	14%
their children	23%	27%	20%	20%	25%	24%
employees sharing households	12%	10%	14%	13%	12%	12%
others in these households	35%	29%	40%	38%	33%	34%

(SOURCE: Author's basic data survey)
 FIGURE 4.3.2.2 The community directly supported by the employment in seven hotels, indicating the content of this community as ratios of the numbers of beneficiaries to the numbers of rooms in the hotels



Dependent for secondary support only

Those dependent for primary support

In the primary sector there is less uniformity in the proportioning than in the totals. While hotels C and E are fairly close in totals, they are constitutionally quite different. Hotel C has the largest proportion of children and the lowest proportion of spouses; hotel E has the highest proportion of householders and the lowest proportion of children. This points up the distinction that has been mentioned of hotel E as the newest hotel with the youngest group of employees, many of whom have been drawn from the ranks of transients.

Hotels A and D which represent the extremes in totals, have very nearly the same proportional construction; both having fewer householders than average, an average number of spouses (indicating a higher-than-average ratio of married householders), and a quite high proportion of children. The implication here is that the difference in the size of the primary community is due to the number of householders employed, whereas with hotel E the difference is with the type of householder who is employed.

Hotel B is the only one of the group that closely approximates the average. This is of interest in that it gives a reality to the average hotel; being a new hotel that joins a rapidly growing resort community of virtually complete tourist orientation also gives this average position added authority.

A summing-up of planning considerations will be developed and presented later but at this point we will note certain generalities as they emerge for purposes of comparison. The hotels are here listed in the descending order of their number of primary community beneficiaries, with the control factors that seem to be operative from the present state of the analysis.

Hotel D, with 1.04 persons per hotel room, has the largest number of primary community members due to the high rate of fecundity of its employed householders. The number of these householders is 0.34 employees per hotel room or precisely the average of the five hotels. The marriage rate of these householders is 71 percent, however, the highest of any of the hotels, and the average employee age is one of the highest. With 0.46 dependent children per hotel room, the highest of any hotel also, these householders produce the largest primary community in relation to the size of the hotel.

Hotel B, with 0.97 persons per hotel room, has the second largest primary community. Although its numbers are a little above average, the proportion of householder-to-spouse-to-children is the nearest to average of any hotel; therefore the size of this community can be attributed only to the number of householders employed. The reasons for this will be explored later.

Hotel E has the highest proportion of employed householders who are also the youngest of these five hotels. The result is the lowest marriage rate (41%) and the lowest number of children per hotel room (0.18), aggregating a secondary community of 0.78 persons per room, or a little less than average.

Hotel A, the oldest hotel with the highest average age of employees, has less householders and less married householders than average but a higher rate of birth that brings the number of dependent children up to the average of 0.32 children per hotel room.

Hotel C has very nearly the same conditions as hotel A. It is a newer hotel physically but its tradition is much the same as hotel A, and it very nearly shares the position of highest average

employee age. The result, therefore, is similar: the lowest proportion of employees and married employees, with an average number of children per hotel room (highest proportion of children per householder), totalling to the smallest primary community per hotel room.

In the secondary sector figure 4.3.3.2 shows hotels A, B, and C with comparable totals but with quite different consistencies as in table 4.3.2.1. Hotel B has the lowest percentage of married female employees and children but it has the highest proportion of employees living with their families.

Hotel A departs the farthest from the average with the highest proportion of married female employees and children but with the lowest proportion of employees living with their parents.

Hotel C is proportionately straddled by hotels A and B.

The secondary sectors of hotels D and E are disposed in about the same proportions and both approximate the average distribution of table 4.3.2.1; hotel D, however, contributes to the support of more than twice the number of beneficiaries of hotel E. Table 4.3.1.1 shows these beneficiaries of hotel D as 2.31 persons per room; that of hotel E as 1.12 persons per room, and the average hotel as 1.56. This spread can be traced to the unusually large number of both married female employees and employees who live at home.

A comparison of figures 3.2.2.1 and 4.3.2.2 suggests that the larger-than-average community ratios of hotel D are a direct result of its larger-than-average employment ratio, i.e., hotel D is distinguished by the number rather than the kind of its employees.

Hotel E, on the other hand, with a fairly high employment ratio, has the smallest of the employee community ratios - a result of its low average employee age - a difference of kind, rather than amount.

Hotels A and C have approximately equal community and employment ratios, straddling hotel B which has higher employment and primary community ratios but a smaller secondary community ratio. These three are, however, bracketed so closely that no significant pattern is seen.

After a study of the departmental differences and influences these relationships will be reviewed again in a search for understanding of causation.

4.3.3 Departmental characteristics and influences. - The community beneficiaries of hotel employment have been identified, enumerated, examined, and divided into two sectors according to the degree of their dependence on this income: primary and secondary. The average characteristics of such community sectors have been studied and the variations from these averages by individual hotels have been noted.

These data and the theories for their application are presented as serviceable tools for more realistic appraisals of the effects of hotel employment on the community. The utility of such tools will depend on (1) the similarity between the conditions under which they were derived and the conditions under which they are applied, or (2) an appreciation of the differences that may exist and an ability to make adjustments for these differences.

Interhotel differences have been seen and the constitution of these differences has been established. To understand the sources of the differences it is necessary to carry the analysis deeper - into an identification of the departmental community dependency patterns which are an extension of the departmental employment patterns found in section 3.

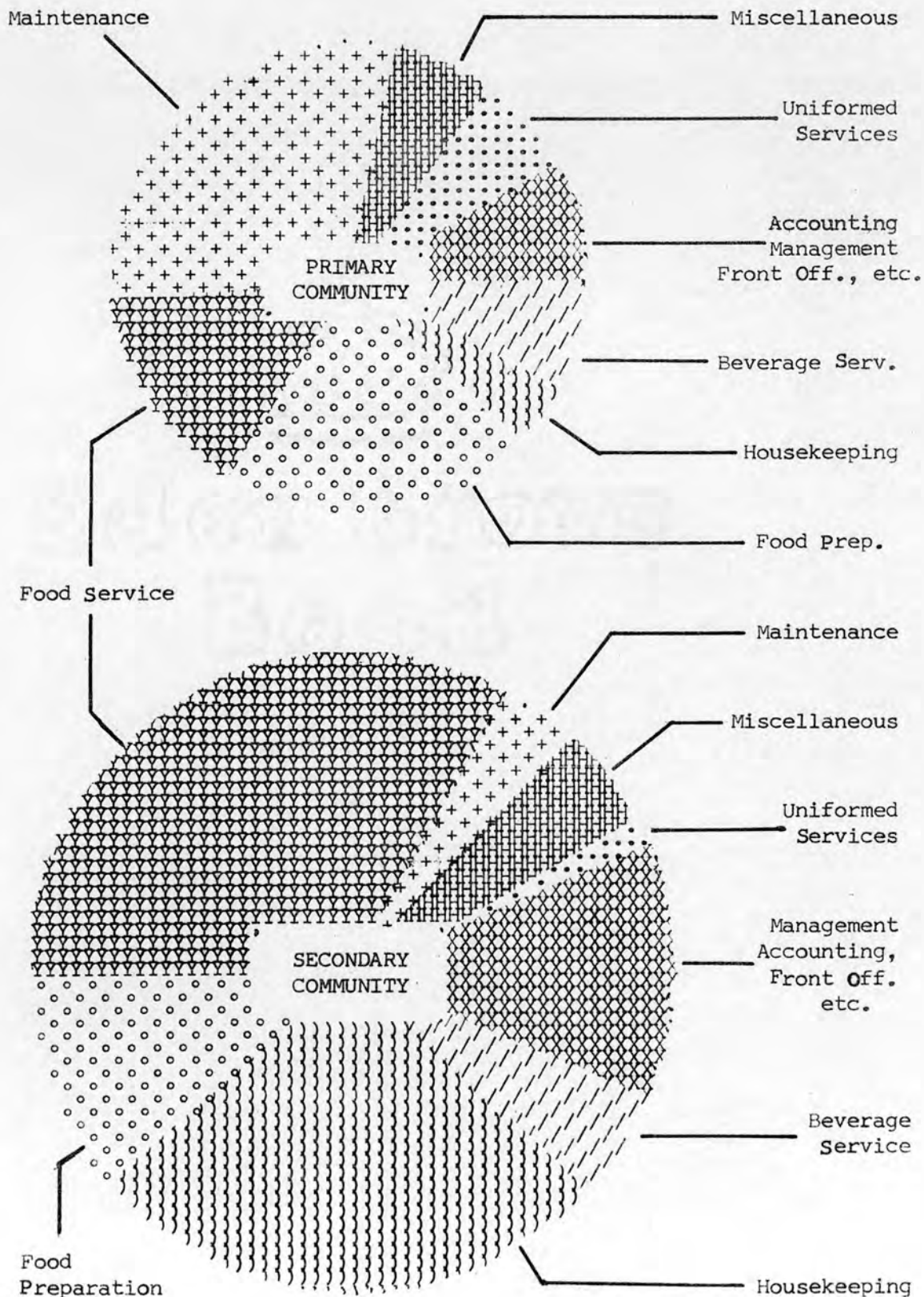
Hotel employment characteristics are usually predetermined, by management, or can be anticipated by analyzing the community's labour supply. If correlations can be established between the characteristics of employment and the characteristics of its dependent community, therefore, it becomes feasible to project the employment community's size and nature.

The pie charts of figure 4.3.3.1 present a graphic statement of the comparative size and constitution of the average community that is dependent on hotel employment for its primary or secondary source of income (as found in hotels A-E). The primary and secondary sectors of this community are proportioned to their relative sizes (0.85:1.56 on table 4.3.3.1) and are divided proportionally by departments to demonstrate the dominant characteristics of each sector.

These aggregations of departments are disassembled on figure 4.3.3.2 wherein the numerical differences between the primary and secondary beneficiaries of each department are directly apposed in the form of bar charts. Since the primary community is of the most importance to this study the departments are arranged in the order of their dominance in this primary sector.

FIGURE 4.3.3.1 Departmental distribution of the average community beneficiaries of hotel employment

(SOURCE: Author's basic data survey)



The departmental differences between these two sectors now stand out clearly, and the distinctive community character of each department is evident. Approximately one-third of the primary sector is supported by the maintenance department and another one-third is dependent on the food preparation and service departments.

Very nearly one-half of the secondary community is supported by the food preparation and service departments and one-quarter is dependent on the housekeeping department.

These relationships will be explored further in the more detailed discussion to follow but, at this point, it is clear that the prominent part played by these departments - maintenance and food - underline the need for more than a superficial application of undefined data. Employment in the maintenance and food departments is subject to the widest of variations as found in the analysis of section 3.2.2.

These variations continued into community ratios will be seen to cover a wide range and make the definition of ratio sources and derivation essential. Estimates which disregard these potential differences, or which carelessly apply undefined data, could be grossly inaccurate.

Table 4.3.3.1 lists beneficiary ratios for each department of each hotel, as well as the hotel averages and the departmental averages on which figures 4.3.3.1 and 4.3.3.2 are based.

The interhotel differences between departmental dependencies are established here and presented graphically on figures 4.3.3.3. and 4.3.3.4. These figures - developed on semilog paper for proportional comparability - are designed to illustrate the average position of each department and also the degree to which

TABLE 4.3.3.1 The community directly supported by the employment in five hotels, expressed as ratios of such beneficiaries to the number of rooms in the hotel
(SOURCE: Author's basic data survey)

	Dependent for primary support					Dependent for secondary support only						
	Hotels					Hotels						
	A	B	C	D	E	Average	A	B	C	D	E	Average
Front Office	(0.01)	(0.01)	(0.03)	(0.02)	(0.03)	(0.02)	(0.22)	(0.08)	(0.15)	(0.14)	(0.13)	(0.14)
Housekeeping	(0.01)	(0.05)	(0.08)	(0.01)	(0.03)	(0.04)	(0.37)	(0.40)	(0.40)	(0.55)	(0.33)	(0.42)
Unif. Serv's.	(0.07)	(0.07)	(0.05)	(0.08)	(0.04)	(0.06)	(0.02)	(0.01)	(0.04)	(0.02)	(0.02)	(0.02)
Bev. Service	(0.03)	(0.10)	(0.04)	(0.02)	(0.11)	(0.06)	(0.15)	(0.05)	(0.09)	(0.12)	(0.04)	(0.09)
Food Prep'n.	(0.14)	(0.22)	(0.13)	(0.25)	(0.16)	(0.19)	(0.20)	(0.18)	(0.19)	(0.21)	(0.15)	(0.19)
Food Service	(0.07)	(0.20)	(0.07)	(0.10)	(0.16)	(0.12)	(0.30)	(0.47)	(0.49)	(0.94)	(0.33)	(0.53)
Accounting	(0.02)	(0.05)	(0.03)	(0.02)	(0.04)	(0.03)	(0.08)	(0.07)	(0.03)	(0.05)	(0.04)	(0.05)
Maintenance	(0.28)	(0.21)	(0.19)	(0.43)	(0.15)	(0.26)	(0.04)	(0.02)	(0.10)	(0.13)	(0.06)	(0.06)
Misc. Serv's.	(0.09)	(0.03)	(0.03)	(0.09)	(0.04)	(0.06)	(0.06)	(0.10)	(0.03)	(0.15)	(0.02)	(0.07)
Management	-	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	-	(0.03)	(0.03)	-	(0.01)	(0.01)
Total	(0.70)	(0.97)	(0.68)	(1.04)	(0.78)	(0.85)	(1.44)	(1.41)	(1.46)	(2.31)	(1.12)	(1.56)

FIGURE 4.3.3.3 The primary community supported by each department in hotels A-E (SOURCE: Author's data survey)

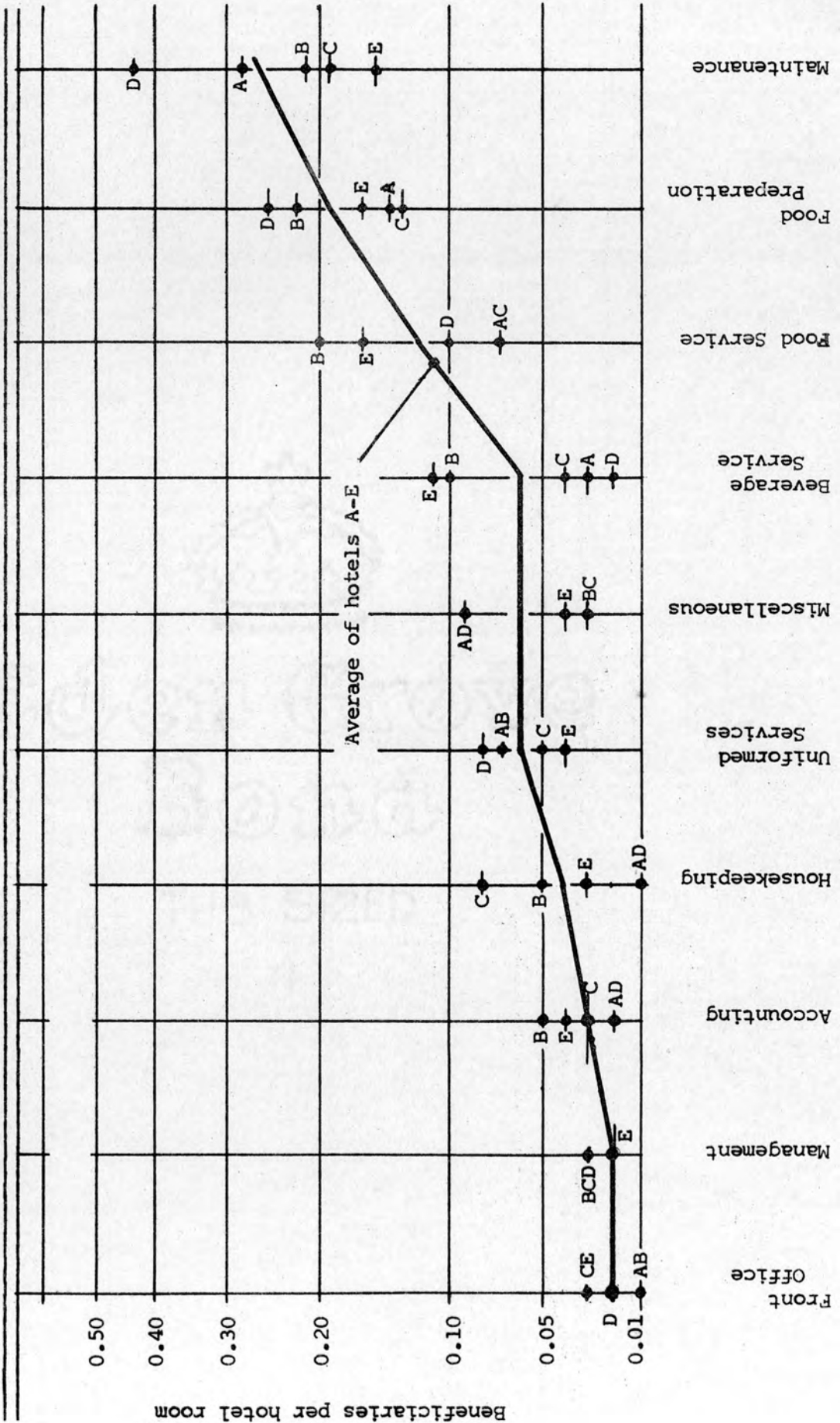
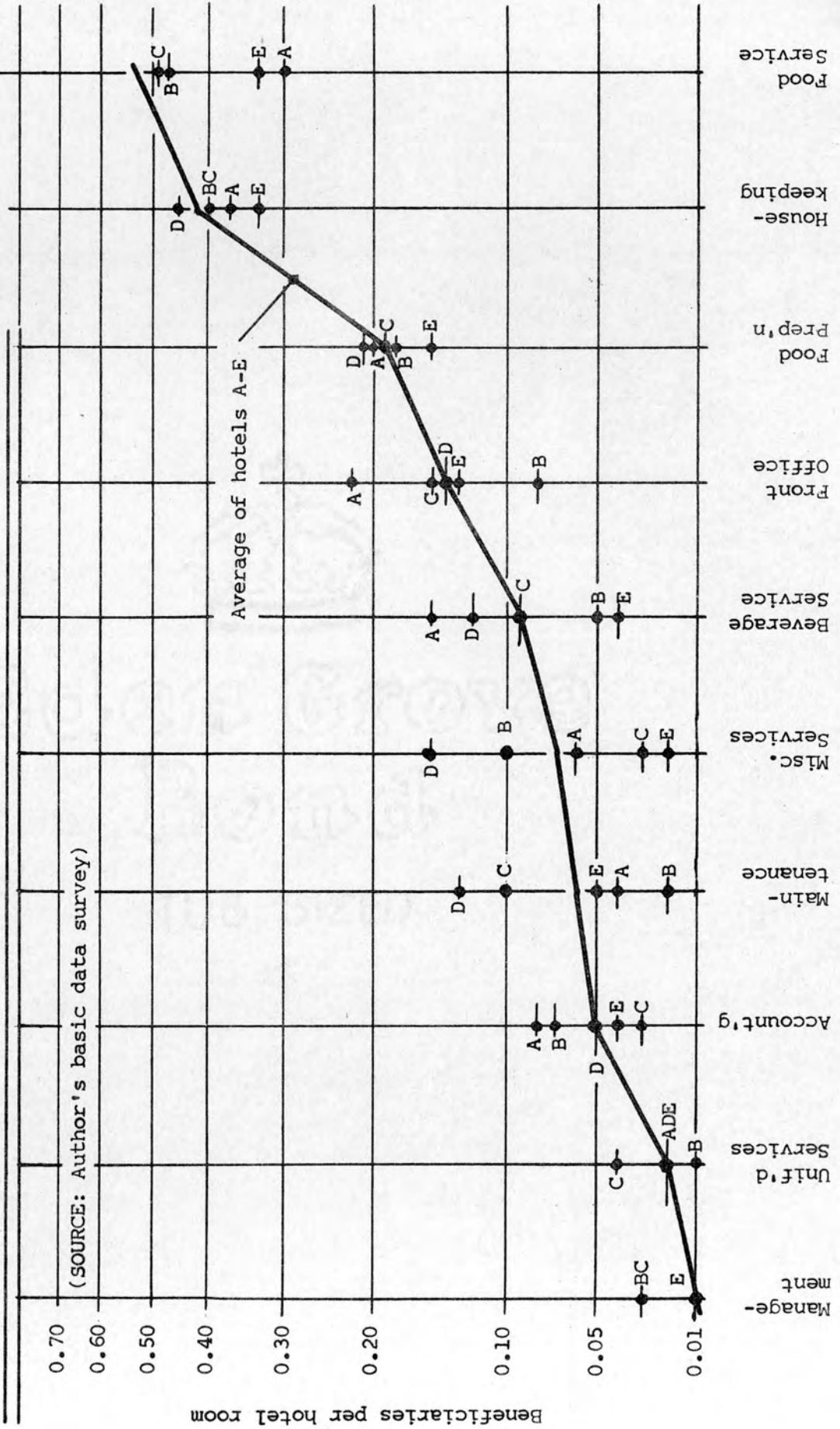


FIGURE 4.3.3.4 The secondary community supported by each department in hotels A-E



the individual departments of each hotel vary from this average. From this figure it can be seen whether a departmental average represents a figure fairly close to all five hotels - as the centre of a tight pattern - whether the average may be unduly influenced by one or two wild shots, or whether the whole group may be so scattered that an average would have little significance.

In both the primary and secondary sectors attention is drawn to the difference between the relatively tight grouping of the hotels' food preparation departments compared to the spread in the maintenance, food service and beverage service departments. In the secondary community (figure 4.3.3.4) the housekeeping department is also closely grouped while the far-flung food service, maintenance, and miscellaneous services departments of hotel D indicate the source of that hotel's inordinately large secondary community - with a 2.31 ratio compared to the average of 1.56 on table 4.3.3.1.

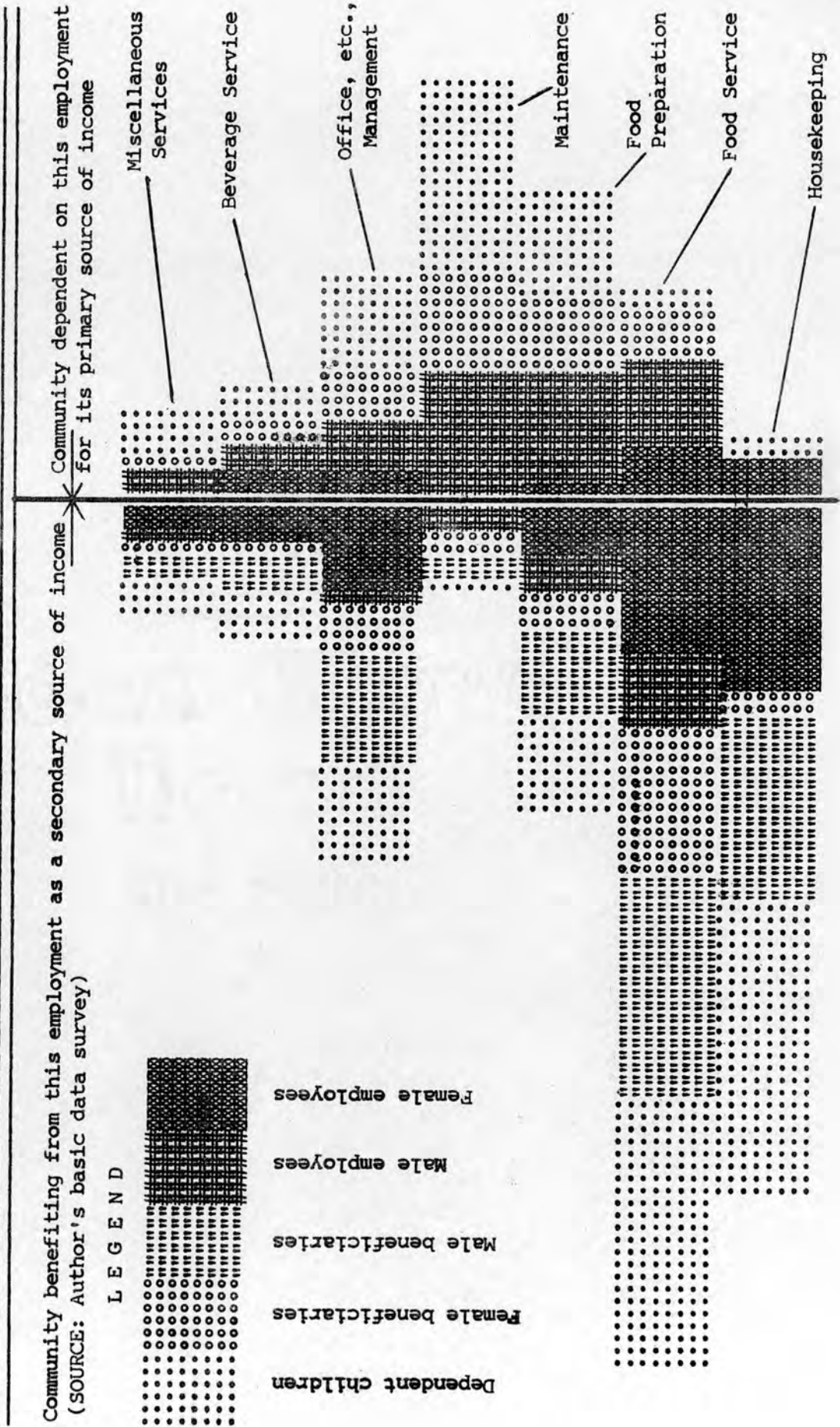
In the primary community (figure 4.3.3.3) hotel D's high ratios in the critical maintenance and food service departments are the cause of its high community average - 1.04 compared to the average ratio of 0.85. Hotel B which, with a primary sector ratio of 0.97 (table 4.3.3.1) is very nearly equal to hotel D (at 1.04) tempers its high ratios in food preparation and service, and beverage service with a relatively low ratio in the maintenance department.

Table 4.3.3.2 and figure 4.3.3.5 break down the average community into its constituent parts. On the table the average number of beneficiaries in each category for each department is given. The totals and averages are given in numbers and as ratios

(SOURCE: Author's basic data survey)
 TABLE 4.3.3.2 The average community directly supported by the employment in hotels A-E, inclusive, indicating the actual number of beneficiaries by departments and, in parenthesis, the ratio of this number to the number of rooms

Department	Employees	Dependent for primary support					Dependent for secondary support only									
		Employed house-holders	Their dependent spouses	Their dependent children	Total community		Married female employees	Their employees, spouses, employed elsewhere	Their dependent children	Employees living in other households	These other households	Total community				
Front Office	20	3.4	0.6	3.6	7.6 (0.02)	10.2	10.2	10.2	10.2	6.4	18	55 (0.14)				
Housekeeping	51.6	7.6	-	6.6	14.2 (0.04)	36.6	36.6	64.8	7.4	20.8	166.2 (0.42)					
Unif. Serv's.	9.2	7	6.2	10.4	23.6 (0.06)	-	-	-	2.2	6.2	8.4 (0.02)					
Bev. Service	21.4	11.6	5	9	25.6 (0.06)	6.8	6.8	8.4	3	8.4	33.4 (0.09)					
Food Prep'n.	49	29	18.6	26.4	74.0 (0.19)	10.2	10.2	14.8	9.8	27.6	72.6 (0.19)					
Food Service	87.6	32.8	9.8	6.8	49.4 (0.12)	19.8	19.8	38	35.0	98.0	210.6 (0.53)					
Accounting	11.8	5.4	2.8	4.4	12.6 (0.03)	3	3	1.2	3.4	9.4	20 (0.05)					
Maintenance	36	30	24.4	46.2	100.6 (0.26)	0.4	0.4	-	5.6	15.8	22.2 (0.06)					
Misc. Serv's.	14	6.6	4.2	11	21.8 (0.06)	3	3	5.4	4.4	12.6	28.4 (0.07)					
Management	4.2	2.8	1.8	4.8	9.4 (0.02)	1	1	1.4	0.4	1.2	5 (0.01)					
Total	305	136 (0.34)	73 (0.18)	129 (0.32)	338 (0.85)	91 (0.23)	91 (0.23)	144 (0.36)	78 (0.20)	218 (0.55)	622 (1.56)					

FIGURE 4.3.3.5 The average employment by departments in hotels A-E and the community directly supported by it



of these numbers to the number of rooms in the average hotel (399). Figure 4.3.3.5 illustrates graphically the relative number of beneficiaries of each kind for each department.

Tables 4.3.3.3, 4.3.3.4, 4.3.3.5, 4.3.3.6, and 4.3.3.7, at the end of this section, give the details of primary and secondary beneficiaries for each department of hotels A, B, C, D, and E.

Certain relationships and influences now are coming into focus if we consider these apparent community effects together with the earlier consideration of each department's distinct characteristics.

If we review the departments in the descending order of their effects on the primary community (figure 4.3.3.2) we see that the maintenance department has a uniformly high position consistent with its large proportion of mature and fecund married male householders. Its distinctly one-sided primary influence is shown on figure 4.3.3.1 as 30 percent of the total primary community compared with only 4 percent of the secondary sector. Figure 3.3.2.2 and table 3.3.2.2 confirm its position as the department with the highest average age. Figure 3.3.1.1 places it as strongly male dominant. Table 3.2.1.1 shows that, in numbers of employees, the department ranks in fourth place behind food service, housekeeping, and food preparation. Table 4.3.3.2 shows, however, that these employees though modest in numbers have the highest proportion of married households and the largest number of dependent children.

This department, composed of employees with such varying titles as maintenance steward, utility houseman, security time-keeper, grounds keeper, maintenance and landscape supervisors,

or simply janitor and gardener, brings to the community the stability of the family household and, at the same time, makes the most demands on the community for additional services.

The food preparation department has the second highest number of dependents in the primary sector of the community. Hotels B and E, in fact, as the two newest hotels with the youngest average age of employees, have slightly more primary dependents from this department than from the maintenance department. The secondary community dependents are approximately equal in number to primary dependents (0.19 persons per hotel room): table 4.2.3.1; but, as a proportion of the total (figure 4.3.3.1), their responsibility is for only 12 percent of the group as against 22 percent of the primary community. The departmental characteristics are not as distinctive or clearly defined as for maintenance, housekeeping, and food service departments. In size the department ranks third with 0.123 employees per hotel room (table 3.2.1.1) or approximately 16.1 percent of total employment. These are about two-thirds male (figure 3.3.1.1) and range from the lowly scullery worker to the chef - the highest paid and most highly prized employee of any department. The group ranks third in average age (table 3.3.2.2) and has about an average number of part-time employees (figure 3.4.2.1). Although third in number of employees and third in number of householders, it is a strong second in number of married householders moving it to its second place in the primary sector. In the secondary sector it is in third place as to number of beneficiaries, consistent with a third place as to numbers of married female employees and their children (table 4.3.3.2). This total of 0.19 secondary dependents

per hotel room is well placed as an average in the middle of a tight group formed by the hotels constituting the average (figure 4.3.3.4) and may therefore be considered relatively reliable.

The food service department has the third highest responsibility for the primary community and is the leading contributor to the secondary sector; the total of the two places this department at the top as the largest contributor to the local economy in terms of total beneficiaries. This dominance is due to the sheer numbers of employees in the department; with a ratio of 0.22 employees per room it includes 28.9 percent of the employees in the average hotel, well ahead of the second place ratio of 0.13 in the housekeeping department (table 3.2.1.1). This is matched with the highest number of householders but only 30 percent of these are married and the birth rate is the lowest of any department. This can be credited to the youthful nature of the group; their average age is only 29.2 years - the lowest of any department. By sex, they are very nearly divided equally in the average hotel although this depends on both management policy and the labour market so can not be considered a rule or even a probability. These factors can also be a considerable influence on the number of employees needed for the type and quality of service desired. Figure 4.3.3.3 shows a fairly even but broad spread between the hotel averages in the primary community. In the secondary community figure 4.3.3.4 shows that hotel D has an inordinately high position, thus raising the average. A comparison of the food service department of hotel D on table 4.3.3.6 with the general averages for the department on table 4.3.3.2 shows the degree to which this department can vary from one hotel to

another. In the primary sector hotel D has 29 householders compared to the average of 33; in hotel D 16 of the 29 are married and they have only 2 dependent children compared with the average department in which only 10 of the 33 householders are married but have 7 children. In the secondary community hotel D has 50 married female employees living with their spouses who are employed elsewhere, and they have 103 dependent children, compared with the general hotel average of only 20 such married female employees with only 38 dependent children. Hotel D has 185 employees living with their parents as against only 98 in the average department. The variations in this department from one hotel to another can run between the extremes of elaborate facilities that cater to non-residents and the complete lack of any dining facilities whatever. The variations here are of interest since they occur in hotels that have been selected as representative of a mean.

Hotel differences in the scope of dining facilities are reflected more clearly in the number of food service employees and their secondary beneficiaries than they are reflected in the number of food preparation employees, their secondary beneficiaries, or in the number of primary beneficiaries of either department. Table 3.2.1.1 shows a range of from 0.14 to 0.301 employees per room in the food service department, for a difference ratio of 1:2.15. In the food preparation department the range is only from 0.09 to 0.14 for a difference ratio of only 1:1.56. The five-hotel average for these two departments is 0.220 and 0.123 respectively. Table 4.3.3.1 shows a range of from 0.07 to 0.20 or a difference ratio of 1:2.86 primary beneficiaries and 0.30 to 0.94 or a ratio of 1:1.13 secondary beneficiaries of

the food service department. In the food preparation department the differences are from 0.14 to 0.25 for a ratio of 1:1.79 primary beneficiaries, and from 0.18 to 0.21 or a ratio of 1:0.86 secondary beneficiaries.

This may be stated, in other words, that the primary communities of both the food preparation and food service departments, and the secondary community of the food preparation department are relatively stable. Fluctuations due to changes or differences in the provision of facilities for preparing and serving food will be first and most noticeably reflected in the numbers of the secondary beneficiaries of the food service department. As will be noted later, where comparisons with the housekeeping department are pertinent, the employees responsible for these food service dependents are drawn largely from the ranks of employees who live at home; they also have the largest percentage of part-time employment of any sector.

The housekeeping department appears as the female (figure 3.3.1.1) opposite number of the male-dominant maintenance department. Both are mature (table 3.3.2.2) fecund (table 4.3.3.2) groups. Maintenance has the largest dependent sector of the primary community but is in a low seventh place in the secondary sector; housekeeping is in a strong second place in the secondary sector with all hotels forming a tight pattern (figure 4.3.3.4) but is in a low seventh place in the primary community. While housekeeping is in second place behind food service, the two departments are head and shoulders above the other departments, contributing between the two of them, 60.6 percent of the members of this secondary community. While they are comparable in numbers

(housekeeping is responsible for 26.7 percent of the total, and food service for 33.9 percent) they are very different in nature. 83 percent of housekeeping's sector is composed of married female employees, their spouses and dependent children; this is equal to 22 percent of the total secondary community, while only 4.5 percent is added by housekeeping's employees who are living with their families. 63 percent of the food service department sector, on the other hand, is drawn from the employees who are living at home; this is 21.4 percent of the total secondary community, nearly one-half of the total such employees and families in the hotel community.

The housekeeping and food service departments are also high in their proportion of part-time employees (figure 3.4.2.1) although as has been noted, the significance of this fact is obscure. It is probable that these part-time employees of the food service department are largely drawn from the ranks of the employees who live at home, and that those from the housekeeping department are working wives who divide their hours between home and job.

The beverage service department does not form a strong or consistent pattern. In numbers, it employs only an average of 0.053 employees per hotel room or about 7 percent of the total; these are divided, in the average hotel, in a proportion of two female employees to one male. This represents an average of the hotels and not the policy or practice of any one; it is quite common to limit the employment of bartenders to either one sex or the other; service is commonly restricted in the same way to waiters or waitresses.

The average female preponderance is expressed in the dependent community division of 0.06 persons per room in the primary community, and 0.09 in the secondary community (table 4.3.3.2). As with the food service and housekeeping departments a relatively large proportion of these employees work part-time, no doubt a necessity due to the hours of beverage service as well as management and employee preferences. As with the food service department, the mixed nature of this department is due to the averaging of the male bar tender with the female waitress to produce an amorphous or an hermaphroditic image.

The remaining departments are relatively minor in individual importance but together they aggregate to 19.4 percent of total employment, account for 22 percent of the primary community, and 18.6 percent of the secondary community.

The lines between these departments - front office, miscellaneous services, accounting, uniformed services, and management - are not the subject of agreement on even a local scale - to say nothing of regional, national or international. Comparison between organizations as well as geographic areas is difficult. Some may be grouped together or with other departments; we find such terms as "administrative and general" or "rooms and front office". Uniformed services may reasonably be included with either room service or front office. Administrative or auditing services may be provided by outside, chain, or group facilities. Management or supplementary employees may not be included on the listings that are subject to union regulation or to certain governmental controls and taxation.

4.3.4 Summary. - This survey and analysis was made under the assumption that, from an examination of existing conditions, dependable ratios could be developed for a determination or projection of certain effects and implications of proposed hotel development.

Table 4.3.1.1 summarizes the general findings of this examination by defining the size and content of the primary and secondary communities of hotels A-E and the hotel typified by the 5-hotel average. All quantities are related to hotel size, being stated numerically and as ratios of the number of persons to the number of hotel rooms.

These are workable ratios that could be applied for rough estimates. For a more sophisticated calculation an understanding of the variations from these averages would facilitate the adjustment of the ratios to suit special or non-applicable conditions.

These hotels were selected for both their variety and their comparability. The variations from the mean, as illustrated in figures 4.3.2.1 and 4.3.2.2 indicate the degree of need to analyze the nature of the differences that influence these variations so that the relative applicability or inapplicability of the ratios can be assessed and adjustments made for their use in other times and places.

This investigation of differences has been pointed toward an identification and analysis of control variables that, for predictive value, would be identifiable for consideration by the planner before the fact. Even if all such variables are not subject to prior determination or firm commitment they can form the basis of an early warning system to alert the planner and developer of potential hazards.

The hotel community is only a part of the total community system of acting and reacting elements. This is an analysis of effects. There has been no determination of the degree to which these effects have resulted from (1) conditions of demand as determined by management policy, or (2) supply as established by the availability of labour.

These two causative factors are in a constant state of mutual adaptation; either may be the dominant determinant of employment at any one time and the balance of pressure can shift easily.

For the purposes of this study it is considered necessary to understand possible causation but the determination of actual cause is not considered important. From a given effect the cause or possible causes can be assessed reasonably. For the planner, however, this is of value only as a guide to an accurate statement of probable effect from a given cause.

It should not be necessary, for instance, for a planner to know in retrospect whether the low average age of the hotel E employees was a result of management preference or whether it was a result of the availability of labour in that age group. The planner should, however, be aware of the potential results of such a youthful staff, and, if he sees from his knowledge of the territory that such is probable - due to whatever cause - he should be able to adjust his estimates accordingly. It is anticipated that these guide lines will be of value for adjustments of this order.

TABLE 4.3.3.3 The community supported by hotel A employment indicating the actual number by departments and, in parenthesis, the ratio of these numbers to the number of hotel rooms (SOURCE: Author's basic data survey)

Department	Employees	Dependent for primary support				Dependent for secondary support only							Total Community
		Employed house-holders	Their dependent spouses	Their dependent children	Total Community	Married female employees	Their spouses, employed elsewhere	Their dependent children	Employees living in other households	These other households	Total Community		
Front Office	15	1	-	-	1 (0.005)	12	12	17	2	6	49 (0.221)		
Housekeeping	27	3	-	-	3 (0.013)	17	17	22	7	20	83 (0.374)		
Unif. Serv's.	5	4	4	8	16 (0.072)	-	-	-	1	3	4 (0.018)		
Bev. Service	11	2	2	2	6 (0.027)	9	9	16	-	-	34 (0.153)		
Food Prep'n.	22	11	8	11	30 (0.135)	5	5	11	6	17	44 (0.198)		
Food Service	31	13	1	1	15 (0.068)	8	8	12	10	28	66 (0.297)		
Accounting	7	2	2	-	4 (0.018)	2	2	3	3	8	18 (0.081)		
Maintenance	16	14	12	36	62 (0.279)	-	-	-	2	6	8 (0.036)		
Misc. Serv's.	6	3	3	13	19 (0.085)	1	1	4	2	6	14 (0.063)		
Total	140	53 (0.239)	32 (0.144)	71 (0.320)	156 (0.703)	54 (0.243)	54 (0.243)	85 (0.383)	33 (0.149)	94 (0.424)	320 (1.441)		

TABLE 4.3.3.4 The community supported by hotel B employment indicating the actual number by department and, in parenthesis, the ratio of this number to the number of hotel rooms (SOURCE: Author's basic data survey)

Department	Dependent for primary support						Dependent for secondary support only						Total Community
	Employed house-holders	Their dependent spouses	Their dependent children	Total Community	Married female employees	Their employees, spouses, employed elsewhere	Their dependent children	Employees living in other households	These other households	Other households	Total Community		
Front Office 11	2	1	-	3 (0.009)	4	4	2	5	14	29 (0.082)			
Housekeeping 44	7	-	11	18 (0.051)	24	24	45	13	36	142 (0.402)			
Unif. Serv's. 6	5	5	13	23 (0.065)	-	-	-	1	3	4 (0.011)			
Bev. Service 23	18	6	10	34 (0.096)	3	3	5	2	6	19 (0.054)			
Food Prep'n. 46	28	19	30	77 (0.218)	13	13	17	5	14	62 (0.176)			
Food Service 82	40	14	18	72 (0.204)	9	9	21	33	92	164 (0.465)			
Accounting 16	9	2	6	17 (0.048)	2	2	-	5	14	23 (0.065)			
Maintenance 25	23	21	31	75 (0.213)	-	-	-	2	6	8 (0.023)			
Misc. Serv's. 16	5	2	5	12 (0.034)	5	5	3	6	17	36 (0.102)			
Management 7	4	4	2	10 (0.028)	3	3	4	-	-	10 (0.028)			
Total 276	141 (0.399)	74 (0.210)	126 (0.357)	341 (0.966)	63 (0.178)	63 (0.178)	97 (0.275)	72 (0.204)	202 (0.572)	497 (1.408)			

TABLE 4.3.3.5 The community supported by hotel C employment indicating the actual number by departments and, in parenthesis, the ratio of this number to the number of hotel rooms (SOURCE: Author's basic data survey)

Department	Dependent for primary support				Dependent for secondary support only							Total Community
	Employed house-holders	Their dependent spouses	Their dependent children	Total Community	Married female employees	Their spouses, employed elsewhere	Their dependent children	Employees living in other households	These other households	25	57 (0.147)	
Front Office	4	1	6	11 (0.028)	9	9	5	9	25		57 (0.147)	
Housekeeping	11	-	18	29 (0.075)	38	38	53	7	20		156 (0.401)	
Unif. Serv's.	5	4	11	20 (0.051)	-	-	-	4	11		15 (0.039)	
Bev. Service	8	3	6	17 (0.044)	7	7	9	3	8		34 (0.087)	
Food Prep'n	17	13	24	54 (0.134)	6	6	17	12	34		75 (0.193)	
Food Service	15	4	7	26 (0.067)	14	14	25	36	101		190 (0.488)	
Accounting	4	2	7	13 (0.033)	4	4	-	1	3		12 (0.031)	
Maintenance	24	21	28	73 (0.188)	-	-	-	1	3		4 (0.010)	
Misc. Serv's.	2	1	7	10 (0.026)	2	2	-	2	6		12 (0.031)	
Management	2	-	11	13 (0.033)	2	2	3	1	3		11 (0.028)	
Total	92 (0.237)	49 (0.126)	125 (0.321)	266 (0.684)	82 (0.211)	82 (0.211)	112 (0.288)	76 (0.195)	214 (0.550)		566 (1.455)	

TABLE 4.3.3.6 The community supported by hotel D employment indicating their actual number by department and, in parenthesis, the ratio of this number to the number of hotel rooms (SOURCE: Author's basic data survey)

Department	Dependent for primary support				Dependent for secondary support only							Total Community
	Employed house-holders	Their dependent spouses	Their dependent children	Total Community	Married female employees	Their spouses, employed elsewhere	Their dependent children	Employees living in other households	These other households	Total Community		
Front Office 22	2	1	5	8 (0.017)	14	14	17	6	17	68 (0.141)		
Housekeeping 79	6	-	-	6 (0.012)	69	69	114	4	11	267 (0.555)		
Unif. Serv's. 13	11	11	16	38 (0.079)	-	-	-	2	6	8 (0.017)		
Bev. Service 22	5	2	3	10 (0.021)	11	11	11	6	17	56 (0.116)		
Food Prep'n. 65	36	30	52	118 (0.245)	13	13	13	16	45	100 (0.208)		
Food Service 145	29	16	2	47 (0.098)	50	50	103	66	185	454 (0.944)		
Accounting 11	3	3	3	9 (0.019)	3	3	1	5	14	26 (0.054)		
Maintenance 71	54	39	116	209 (0.434)	2	2	-	15	42	61 (0.127)		
Misc. Serv's. 30	14	10	20	44 (0.091)	5	5	20	11	31	72 (0.150)		
Management 3	3	3	6	12 (0.025)	-	-	-	-	-	-		
Total 461	163 (0.339)	115 (0.239)	223 (0.464)	501 (1.042)	167 (0.347)	167 (0.347)	279 (0.580)	131 (0.272)	368 (0.765)	1,112 (2.312)		

TABLE 4.3.3.7 The community supported by hotel E employment indicating the actual number by departments and, in parenthesis, the ratio of this number to the number of hotel rooms (SOURCE: Author's basic data survey)

Department	Employees	Dependent for primary support					Dependent for secondary support only							Total Community
		Employed house-holders	Their dependent spouses	Their dependent children	Total Community	Married female employees	Their spouses, employed elsewhere	Their dependent children	Employees living in other households	These other households	Total Community			
Front Office	30	8	-	7	15 (0.027)	12	12	10	10	28	72 (0.131)			
Housekeeping	52	11	-	4	15 (0.027)	35	35	6	6	17	183 (0.333)			
Unif. Serv's.	13	10	6	4	20 (0.036)	-	-	-	3	8	11 (0.020)			
Bev. Service	33	25	12	24	61 (0.111)	4	4	1	4	11	24 (0.044)			
Food Prep'n.	77	53	23	14	90 (0.164)	14	14	16	10	28	82 (0.149)			
Food Service	115	67	14	6	87 (0.158)	18	18	29	30	84	179 (0.326)			
Accounting	16	9	5	6	20 (0.036)	4	4	2	3	8	21 (0.038)			
Maintenance	43	35	29	20	84 (0.153)	-	-	-	8	22	30 (0.055)			
Misc. Serv's.	12	9	5	10	24 (0.044)	2	2	-	1	3	8 (0.015)			
Management	6	5	2	5	12 (0.022)	-	-	-	1	3	4 (0.007)			
Total	397	232 (0.423)	96 (0.175)	100 (0.182)	428 (0.780)	89 (0.162)	89 (0.162)	148 (0.270)	76 (0.138)	212 (0.386)	614 (1.118)			

5. IMPLICATIONS FOR DEVELOPMENT PLANNING

5.1 The Findings

5.1.1 Limitations

5.1.2 Contributions

5.2 Applications

5.2.1 Intramural applications

5.2.2 Extramural applications

5. IMPLICATIONS FOR DEVELOPMENT PLANNING

In the introduction to this dissertation it was hypothesized that an increased familiarity with certain facets of hotel employment could lead to more reliable estimates and projections of this employment's effect on the community. To develop and test this hypothesis, data have been collected, organized, analyzed, and evaluated.

The findings consistently confirm the expectation that a clear pattern of departmental characteristics exists and that consistent, significant cause-and-effect or correlative relationships would appear to have a potential predictive value in measurable terms. Coupled with this statistical side was developed an appreciation of the subject's complexity. The web of employee-department-hotel-community relationships is intricate but firmly established, significant, and predictable.

5.1 The Findings

In defining the scope of the findings it is obviously easier to state what has been found than to cover the limitless field of what has not. Certain limitations - both voluntary and involuntary - of which the author is aware, however, should be mentioned.

5.1.1 Limitations. - The scope of the statistical data is limited by the writer's resources (involuntary) and by the writer's selective judgment (voluntary, discretionary, or arbitrary). The analysis examines hotel employment as a link in a chain of causes and effects, and not as an end in itself. The field under examination, therefore, has been arbitrarily made more narrow than that established by other studies, e.g., the activities included in the definition of hotel and catering services draughted by the ECONOMIC DEVELOPMENT COMMITTEE FOR HOTELS AND CATERING (1967, p.2). For that study ("Your Manpower") a wide definition was adopted, covering "all hotel and catering activities wherever they were found." (Ibid., p.3) These included not only such employment sources as holiday camps, restaurants, cafes and snack bars, public houses, clubs, and catering contractors (i.e., all units whose main business is hotel keeping and/or catering), but also such ancillary forms of catering as works canteens and luncheon clubs; catering in schools, hospitals and institutions; stores, restaurants, and transport catering.

Although broad in its field of coverage, that study "seeks to provide a simple manpower profile of the industry" (Ibid., p.1) "through a quantitative analysis of the industry and its employees." This dissertation varies from the above study and others of its kind in that it goes beyond the analysis of the employee to establish not only an employment profile but a community profile of the beneficiaries of a specific segment of employment.

To facilitate such an increase in depth, the breadth has been arbitrarily limited to a clearly defined field of significant material, i.e., the employment in hotels providing the bulk of services to the tourist industry in specific geographical areas. The factors influencing the selection of these hotels (A-E) are discussed in section 3.1.1.

Here also a choice had to be made between the maximizing of breadth or depth. The emphasis on the type rather than the number of hotels was voluntary in the belief that the broad average often balances the gain in breadth with a loss of significance. The wide-angle view surrounds the accuracy of the centre with a distorted periphery. The rifle seemed more appropriate to the target than the shotgun.

The statistical disregard of tourist caravans, camping, rooming houses and other factors, such as the seasonal shifts in demand and employment that have significance in some areas, has been mentioned in section 3.1. The relative lack of such complications in Hawaii simplifies the analyst's problem and gives clarity and validity to conclusions that might become confused under more complex conditions.

The research describes and analyzes the situation at one moment in its progress, restricting the record to that of a single view, assuming a static state of equilibrium as with one film clipped from a cinema strip. To do more would necessitate a continuing program which is not feasible. Such a limitation means that the statistical areas of the report will be dated but this need not destroy their value. The ratios, relationships, and principles will change slowly - if at all - and should not be affected by short-term fluctuations. The derivations of these are given; periodic checks on their validity are possible and adjustments can be made as needed.

The most profound changes are not those that merely affect statistical counts; they are those that might occur in the fundamental observations such as those regarding the male-female employment practices or householder status.

It has been observed, in hotels A-E (section 3.3.1), that employment in some departments is dominantly male or female. It has also been observed (section 4.1.1) that the working husband is considered the householder and it is his place of employment that determines the household place of residence - even if his wife and perhaps his children also work.

Changes in these conditions such as, for instance, a shift to a more matriarchal society with husbands moving into the house-keeping department and wives taking over the maintenance positions or, more critically, the wives becoming the producers of the family's primary source of income, might necessitate a reassessment of certain ratios. The basic assumptions, regarding the significance of the householder (whether male or female) in determining the rate of community growth, would not be disturbed.

5.1.2 The contributions. - This analysis has produced material of two sorts: (1) statistical data arranged in various patterns to expose and define relationships, and (2) theory developed regarding these relationships. McLOUGHLIN (1970) cites the opinion of TOULMIN (1953) that "only when a regularity has been suspected can the planning of an experiment begin: until that time the mere multiplication of experiments is comparatively fruitless. . . and the accumulation of observations in large numbers will be as much a waste of energy in physics as in cartography." (p.60)

The basis for proceeding with this "accumulation of observations" has been discussed (Introduction). Not only is it considered necessary to "suspect a regularity" in the relationships of hotel employment, but it has been a self-imposed or stipulated aim that the findings contribute toward an improvement in understanding, information, and resources that might gainfully be employed in solution of significant problems.

An improvement is sought in understanding the unique nature of hotel employment, i.e., the distinctive characteristics that distinguish it - and its effects on the community - from other forms of industrial employment. Such an improvement in understanding is attempted through a study that increases the supply of information and resources available to the planner or analyst.

The study is based on observations of the fundamental units of this employment - the employees themselves. All seemingly significant characteristics are recorded and employees are grouped in various ways according to these characteristics. These are the basic building blocks of the structure; the manner

in which they are used to construct the different departments and the manner in which the departments are formed into the total hotel structure are analyzed.

With the units and the form of their articulation exposed to view, relationships appear and can be studied. Here new ground is broken. Statistics regarding total hotel employment have been previously available but have varied inexplicably over a wide range. In this study of the individual departments the causes of interhotel differences become apparent. It becomes clear that averages must be well defined if they are to be compared or used, by reference, for projections.

Such relationships are obviously not limited to those that are presented herein; others were examined but, for the purposes of this study, they did not seem sufficiently productive to warrant inclusion. It is hoped that enough detail is included to allow exploration, by others, of different channels that may be opened up by other problems or interests. It is hoped also that this basis has been defined clearly enough to serve as a foundation for further effort and that, if conditions dictate a repetition or up-dating of material, the way will be made easier by the patterns and methods established.

This, then, is a purpose of this presentation. The findings are not considered ends in themselves but means to many ends: tools that may be used, resharpened or refashioned for many jobs.

5.2 Applications

Applications may be of either a theoretical nature or a direct application of statistical material; they may be directed toward intramural problems of hotel employment or toward the extramural relationships with the community.

The location of areas for testing and application of the findings in Hawaii poses no problem since a recognition and consideration of such areas has been a guiding factor in the collection and analysis of the statistical material and in the framing of the basic hypotheses. The value of the material, however, lies also in its applicability in other areas under analogous conditions. The assumption or recognition of such an analogy requires an understanding of both the reference material and the specific case to which the application of the material is proposed. If the situations are truly analogous - which is a rare occurrence - the reference material may be freely applied. If there are identifiable differences the material may be applied in a rationally adjusted form.

5.2.1 Intramural applications. - The most direct and immediate interest in the application of these findings was expressed by the members of management and employee relations departments who were attracted by the comparative material - its manner of organization and presentation - as a means of evaluation and analysis of their performance records.

These interested sectors were those from whom the bulk of the basic data had been obtained, and the presentation, by this demonstration of the value of such data, gave encouragement to a program of more complete - and yet selective - recording of employment characteristics.

The manner in which the differences between hotels A-E, X and Y have been exposed and considered illustrates the potential for comparisons with other hotels and analysis of special conditions. The averages may be used or, if the particular characteristics of one hotel or one department seem applicable, more specific data may be considered.

Such applications of these findings could constitute a constructive extension of this effort, i.e., treating the new hotel as an addition to the seven, revising averages, comparing relationships, and reviewing the theory developed therefrom. This would require a thorough analysis of the hotel in question which, in essence, is the action that this report would hope to inspire. Any such work would enrich these findings: adding depth and breadth to the data, reinforcing the theory by confirmation or revision.

If such analysis is not feasible both the general and specific data still have been found valuable and of interest as comparative measurements. When such general reviews expose areas of special interest these may be studied in greater detail. If a peculiarity in any particular sector is suspected or anticipated the findings pertinent to that particular area may be extracted. The implications of policy that might propose the employment of only male waiters, for instance, could be seen to have a measurable effect on the householder ratio and, therefore, on the requirements for housing and public services.

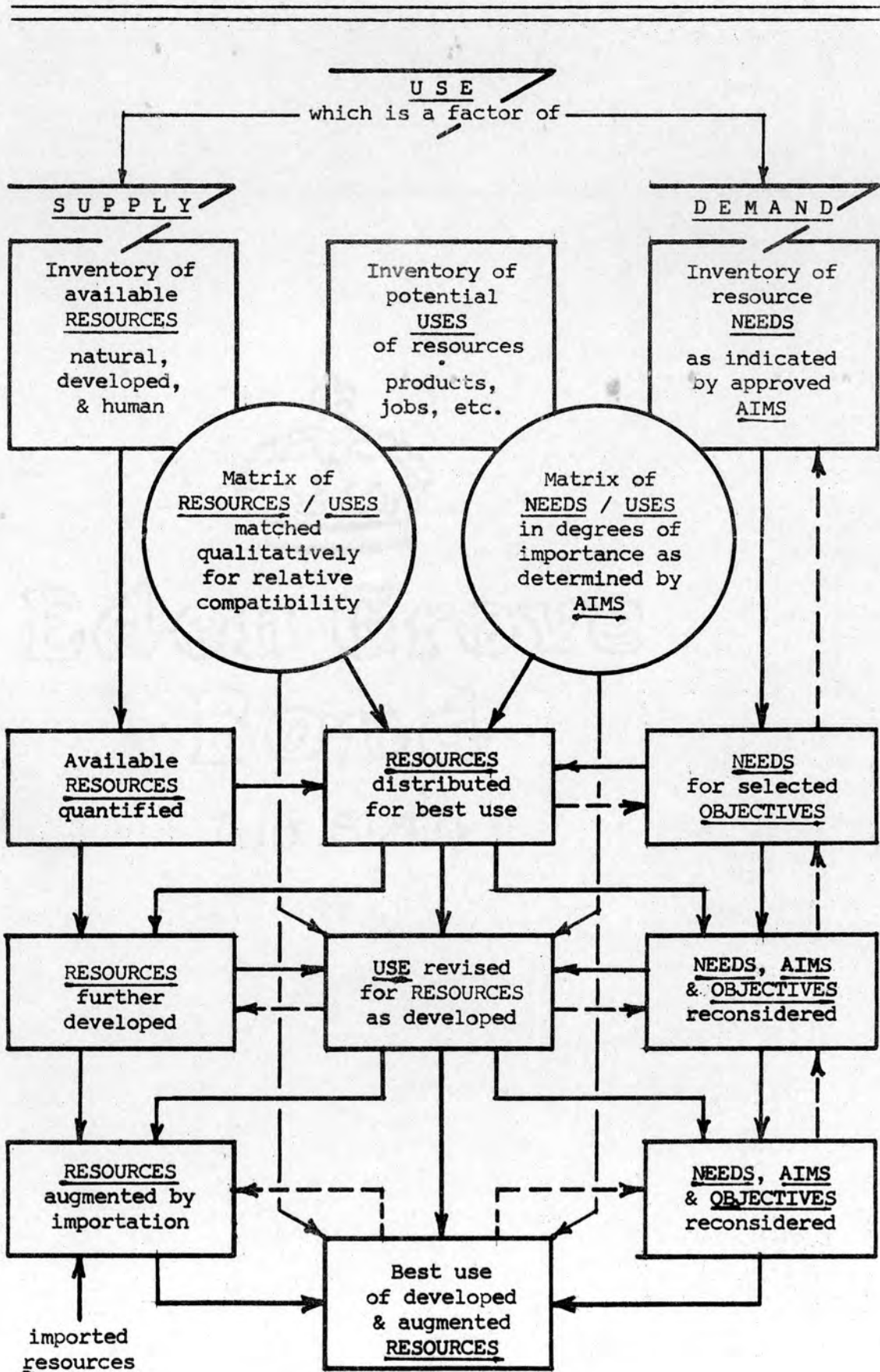
Offers of employment as justification for a hotel development can be seen to have little appeal in a community burdened with unemployed highly skilled male workers and a shortage of unemployed females. Elements bearing on the employment threshold have been mentioned; the critical nature of this limit and its relationship to the community are reviewed in the following section.

5.2.2 Extramural applications. - When moving out into the field of community relations, different interests are involved. Two areas of significant and directly applicable use of this study are in an assessment of the demands for labour, and in the projection of the resultant community growth and demand for facilities.

Figure 5.2.2.1 which has been noted (section 2.4) illustrates a concept of a general planning process for the assessment and disposition of any community resource(s) - the end product being the determination of the best use of resources in consideration of their availability, the demands to be made on them, and the aims and objectives of the community. Applied to an analysis of hotel employment, the left hand column, SUPPLY, consists of an inventory and subsequent consideration of the community's human resources, i.e., the labour supply. This listing must be in sufficient detail to enable a direct comparison with the DEMAND column on the right.

DEMAND is a statement of the hotel's needs or requirements as tempered by the predetermined community aims and objectives. As indicated by the findings of this analysis, total numbers have little meaning and can be misleading without a detailed knowledge

FIGURE 5.2.2.1 A method of assessing the potentialities of existing resources and planning for their best use



of the type of employment available, the types of demands that will be made, and the types of employees who might fill the need. It has been shown that hotel employment is unique and its demands are like those of no other industry. Such distinctions as the age, sex, skills, maturity, income level, and hours of employment are significant for a matching of SUPPLY to DEMAND for the most satisfactory USE, as indicated in the centre column.

The use of matrices might be valuable for such a matching of job characteristics with labour supply. If this matching is satisfactory the process is complete. If the match is unsatisfactory two adjustments are possible: (1) the quality of labour is improved, increasing the effective quantity, by training and retraining the available supply, and (2) needs, aims, and objectives are reconsidered - reducing or altering demands in accordance with the realities of labour supply. If supply and demand still are not satisfactorily matched, needs, aims, and objectives may be again considered and, if necessary and in accord with objectives, labour may be imported to bridge the gap.

The findings of this study could be gainfully applied to the assessment of demands: by the developer in preparing a feasibility study, and by governmental agencies in evaluating such a study. They could also be applied by the community in gaining a better understanding of their human resources and the implications of labour importation. An awareness of the employment threshold and its effects on the community's costs and benefits is necessary in the framing of aims and objectives. A familiarity with the complexity of the relationships and the issues should make all those who are involved wary of glibly presented averages and references which may not be applicable.

With the addition of the family dimension to the employment pattern the analysis moves out into the community, taking up a primary concern of this study. New ground is broken here by setting aside the employee community - consisting of the employees and their families - as a separate identifiable group. This group is divided into two sectors: (1) the primary beneficiaries of this employment, for whom the income, so derived, is their primary source of support, and (2) the secondary beneficiaries who depend on this income for secondary or supplementary support only.

Employed householders, their spouses, and dependent children constitute the primary sector. The secondary sector is identified as an aggregation of (1) the married female employees living with their husbands, (2) these husbands (who are employed elsewhere and who are considered the head of the household, i.e., the householder), (3) their dependent children, (4) other employees who are not householders but living in the households of others (such as students living at home), and (5) the other members of these households who benefit from the income of these employees.

In the light of these findings another - and very critical - postulate is advanced and may be applied: if the local labour supply is inadequate and the importation of labour is necessary, only those who could - and would - support themselves as householders by this employment will be attracted to the area as new residents. Secondary beneficiaries would retain their present place of residence; they are either prior residents of the community or, if necessary they will commute to it, continuing to live in the household of another elsewhere. In either event

these secondary beneficiaries will not increase the community population or the demand for services - although, as an indirect effect, the increased community income may produce a demand for improved service.

These distinctions place particular importance on identifying and counting the householders - a statistical exercise that has seldom if ever been so emphasized. An application of these principles to the different departments produces some distinct and significant patterns of the effects of this employment - and therefore of these departments - on the community. Table 4.3.3.2, for instance, shows that, in the average hotel represented by these examples, the maintenance department has 36 employees of whom 30 are householders offering primary support to 100 persons and secondary support to only 22 persons. Housekeeping, on the other hand, has employment for 52 females only 8 of whom are householders offering primary support to only 14 persons, while the others provided secondary support to 166 persons. Food service, the largest department with 88 employees, has 33 householders but only 10 of these are married (as against 24 out of 30 for the maintenance department) so that this department supports only 50 in the primary sector but in the secondary sector it supports 211, the largest group of any department.

Hotel D, as can be seen from table 4.3.3.1, has the largest group of primary beneficiaries due to its inordinately large maintenance department; it also has the largest secondary sector due to a fairly large housekeeping department and a very large food service department. These differences are, in part, explained by the physical layout of the plant; the grounds are larger than

average and there are individual cottages that require above average housekeeping effort and maintenance service.

There is a potential for many such applications and from them many implications emerge. In section 3.2.1, for instance, the hazards of averaging different types of hotels is discussed. Employment estimates can be misled by such averages; and errors in this fundamental factor are magnified in a snowballing effect if they form the basis for projections of community effects. A hotel that offers only rooms and room service concentrates its employment in the housekeeping department which will have a minimal effect on the community. Table 3.2.1.1 shows that hotels X and Y, which are in this category, have roughly one-third the number of maintenance employees per hotel room as the average of the other hotels and will, therefore, make less demands on the community from this sector.

Many such characteristics can be traced through comparisons of department with department and hotel with hotel. It seems reasonable to assume that, if such comparisons between hotels and departments produced significant implications here, these same comparisons might be fruitfully applied elsewhere. Correlations of employment data with other variables such as physical design, management policy, competitive position, or employment supply seem to suggest cause-and-effect relationships with predictive value.

A current example in consideration of these issues was published during the early stages of this survey, analyzing many aspects of tourism in Hawaii. (HAWAII, DPED, 1972a, and 1972b)

For the first time - observable in available literature - concerns such as those that actuated this survey were expressed with a clear sense of urgency as well as futility due to lack of supporting data.

The portion of these reports which is of interest here concerns a review of the actual community growth that occurred in the resort area of hotels A, E, and X over a ten year period as compared with projected estimates that had been made of this growth due to expected resort construction. (HAWAII, DPED, 1972, pp.16-18)

A prediction of what "the 1960-1970 population growth should have been, based on generally expected effects of resort development on employment and population growth in Hawaii. . . according to the most current data" proved to be 4.48 times the actual growth recorded by the U.S. Census. This is a differential that warrants concern. The report speculated that the following considerations may have been influential:

- (1) The secondary or non-basic community might be lacking in development.
- (2) Many workers may be commuting rather than moving to the area.
- (3) An unknown proportion of the employees may be single, transient, or childless couples.
- (4) Some workers may have transferred to hotel jobs from other industries in the same area.
- (5) Some workers may be "moonlighting", i.e., holding some of these jobs on a part-time basis in addition to their regular prior employment in the area.

The findings of the author's survey give positive confirmation to items 3 and 6. From personal observations and interviews with management it seems clear that all the other items are operative to some degree.

These are the steps taken in the derivation of this troublesome estimate (Ibid., p.17):

- (1) 1,584 hotel rooms were added to the hotel inventory of West Hawaii during the period of 1960-1970.
- (2) 1,680 new jobs were anticipated as the "tourism-related basic employment increase" due to this hotel growth on the basis of somewhat more than 0.6 hotel workers per room and 0.4 nonhotel workers per room.
- (3) 180 workers were estimated to have moved to this hotel employment from basic agricultural employment within the region.

- (4) 1,500 basic jobs are thus added to the community after deducting the jobs filled by prior residents (item 3) from the total jobs (item 2).
- (5) 1,100 non-basic or support jobs are estimated to have been created on a basis of 0.7 non-basic workers per new employee (item 4).

- (6) 2,600 total new jobs are estimated to have been created as a total of basic (item 4) and non-basic (item 5) jobs.
- (7) 1,410 of these jobs are estimated to have been filled by prior residents: 1,150 wives and students, and 260 from other local employment.

- (8) 1,190 jobs, therefore, must be filled by new residents to the community (item 6 minus item 7).
- (9) 950 new households would be added to the community by these new worker-immigrants (item 8) on a basis of 1.25 workers per household.
- (10) 3,610 persons will be added to the community on a basis of 3.8 persons per household (item 9).

However, "the actual increase in West Hawaii's population from 1960 to 1970 was only 805 persons, according to the U.S.census. This is far below the 3,610 projected level based on the above assumptions." The conclusion drawn was that West Hawaii had not "experienced the population growth expected from the development of hotels there." (Ibid., p.17)

A comparison of this projection with one based on the ratios derived from the observations of hotels A-E is distorted by the author's lack of agreement on the use of the 0.7 multiplier for non-basic employment (item 5 above). It does not seem reasonable to apply this factor to the 1,410 workers (line 7) who are prior residents of the community, as are the 180 workers of line 3, and, therefore, already receiving the benefits of community and support services. With this adjustment the estimate might appear thus:

- (1) 1,584 new hotel rooms (item 1, above)
- (2) 1,210 new employees at 0.764 employees per room (table 3.2.2.1)
- (3) 1,590 employees available from the local labour pool (items 3 and 7)
- (4) 380 local employees still available for other employment.

Therefore, from this approach it appears that the total load of the anticipated hotel employment increase could have been absorbed with no importation of labour and the recorded increase of 805 persons might be due to natural increase, to other employment required by demands for improved services, or to new residents such as retired persons.

Even if the report's estimate of 1,680 new tourist-related jobs is accepted, this still would bring only 90 new workers to the area after deducting the agricultural workers, working wives and students, and the unemployed (1680-180-1410). To these would be added 63 non-basic workers (90×0.7) for a total of 153 immigrant workers. These would represent 68 households at 2.24 workers per household and 169 persons at 2.485 persons per household. This total addition to the community of 169 persons is still only 20 percent of the total community growth of 805 for the period.

This retrospective view formed the background for estimates of the future. It was hoped to "gauge the reliability of current projections for future growth" and one can judge from the 4.48 multiple differential between estimates and actuality noted on page 63 the success with which this was achieved. Estimates were required, however, so with the qualification that such estimates were offered for their general indications rather than their mathematical accuracy, the report continued with an acceptance of the same ratios as the best available. (Ibid., pp.38, 39)

This first estimate involved population growth. If we compare its progress with the steps indicated in figure 5.2.2.1 we see that an inventory of resources had to a certain degree

been accomplished with a separation of plantation workers, wives, students, and unemployed. Jobs, however, have been estimated numerically only. There is no attempt to match the qualifications of the workers with the requirements of the jobs although the adequacy of the local labour supply is determined as much by this factor as it is by numbers.

The following estimate, which looked forward rather than backward, projected hotel employment-generated growth for five year and fifteen year periods. Aggregate growth was the aim with no concern for where the households came from. This was done in a series of four steps: (Ibid., p.45)

- (1) An estimate is made of the number of hotel rooms that will be built in the next five years "based on developers' short-run plans", and an estimate of growth after fifteen years based on "half of long-run plans", presumably on the considered opinion that this is the degree of probability.
- (2) An estimate is made of tourist generated employment, assuming 1.7 hotel workers per hotel room, a ratio that is supported only by reference to prior sources.
- (3) An estimate is made of the number of families or households involved, on an assumption that there are 1.3 workers per household. This assumption is based on a statement that this represented the approximate ratio in West Hawaii during the 1960's.
- (4) The population growth is estimated on an assumed ratio of 3.8 persons per household which is stated as the approximate ratio for West Hawaii up to 1969.

This acceptance is qualified with the statement that "If many of the workers added to the area are young transients, or childless couples, the number of persons per household and the number of workers per household could vary considerably, probably reducing the expected increase in population." (Ibid., pp.38, 39, 45)

These procedures are followed to project population increases of "22,800 persons added some time after five years and 39,900 persons after 15 years." An appreciation of these figures is stated in that:

Population increases of this magnitude can be reached only through substantial in-migration. At the present average annual rate of growth for the State (two percent per year), growth of the present West Hawaii population from natural increase would total only about 1,400 persons by 1975. A natural increase of 1,400 persons (meeting only half the short-run population growth expected by 1975) could mean 10,000 in-migrant workers to the region. However, population growth could be reduced if single workers and part-time workers are used to meet some of the employment needs of the hotels. (Ibid., p.39)

In view of the inaccuracy of previous estimates a recognition is stated of the potentials for error in all of the assumed ratios and multipliers. It is accepted as likely that "physical growth will be slower than expected. . .In any case, the projections made in this chapter should not be construed as serious population predictions. The projections are meant only to demonstrate the extent of the growth entailed in private development plans, as a means of evaluating the possible impacts which the full implementation of these plans would have." (Ibid., p.39)

If the ratios derived from the author's survey of hotels A-E are applied to these assumptions of future hotel construction, as seen on table 5.2.2.1 and figure 5.2.2.2, the above estimates for households are reduced by over one-half, and the estimates for total population growth are reduced by over two-thirds.

This clearly demonstrates the implications of these findings. The degree of difference between these assessments is extreme. The application of the principles is of immediate and considerable concern to a broad range of interests.

An equitable distribution, for instance, between the public and private sectors, of the costs of tourism development is recognized as a planner's problem (section 2.2.2). A substantial part of this cost is expended for the facilities and services required by the hotel employees: housing, schools, parks, fire and police protection, etc.

In Hawaii it is being felt that the developer is not carrying his share of this burden and that his profits are, therefore, inordinately high. The balance could be adjusted by increased taxes but it has been proposed that he assume certain costs directly - such as by providing for employees' housing (HAWAII, DPED, 1972a, p.29).

If such a burden were imposed, how would the necessary amount of housing be determined? How many employees would require housing and of what type? Should the developer, as has been suggested (HAWAII, DPED, 1972b, p.60) assume the responsibility for housing all employees or, as the findings of this survey seem to imply, might he be reasonably held responsible for housing only the new residents who are attracted to the area by the employment provided by his development?

TABLE 5.2.2.1 Compared estimates of additional employment, households and population generated by hotel employment in West Hawaii for the years 1975 and 1985.

Year	Source	Hotel rooms ¹	Basic + support jobs ²	Households ³	Population ⁴
1975	(a)	4,700	7,800	6,000	22,800
	(b)	4,700	(6,110)	(2,730)	(6,825)
1985	(a)	8,000	13,600	10,500	39,900
	(b)	8,000	(10,400)	(4,640)	(11,600)

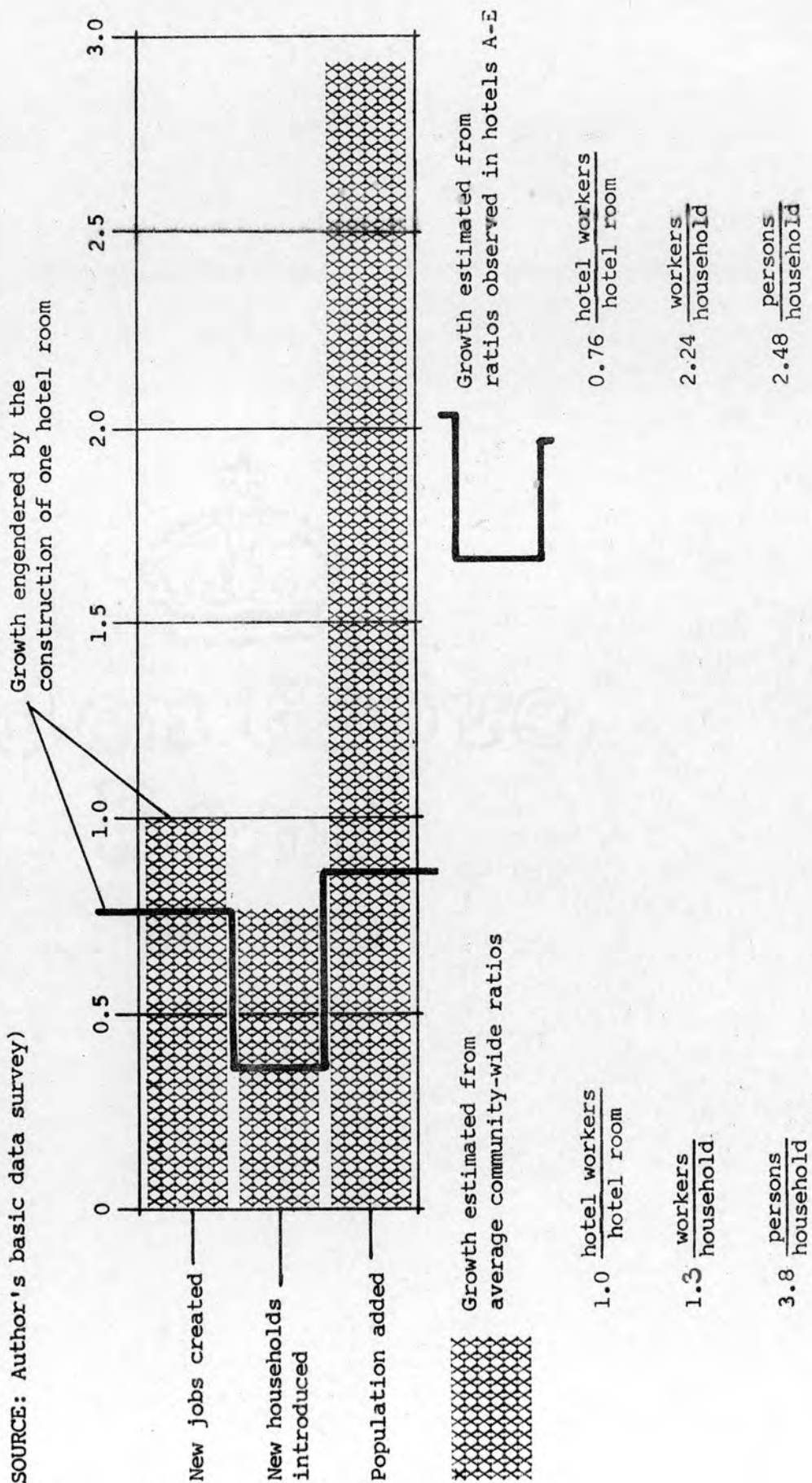
Basis of compared estimates:

- 1a. The number of hotel rooms estimated from a direct survey of developers' short-term plans for 1975, and one-half of these developers' long-term plans for 1985. (Source a)
- 1b. Assumed equal to 1a, above, for purposes of comparison.
- 2a. An assumed ratio of 1.7 employees per hotel room which is a total of 1.0 basic workers plus 0.7 support workers per hotel room. (Source a)
- 2b. (in parenthesis) An assumed ratio of 1.3 employees per hotel room which is a total of 0.76 basic workers (Source b) and 0.53 support workers per hotel room (this 0.76 basic workers multiplied by 0.7, the multiplier accepted from Source a).
- 3a. An assumed ratio of 1.3 workers per household (Source a).
- 3b. (in parenthesis) A derived ratio of 2.24 workers per household (Source b).
- 4a. An assumed ratio of 3.8 persons per household (Source a).
- 4b. (in parenthesis) A derived ratio of 2.5 persons per household (Source b).

SOURCES: (a) HAWAII, DPED, 1972b, pp.38-45
 (b) Author's basic data survey.

FIGURE 5.2.2.2 Hotel-engendered community growth estimated from average community-wide ratios compared with this growth estimated from hotel-specific ratios (hotels A-E)

(SOURCE: Author's basic data survey)



As an example - as illustrated graphically by figure 5.2.2.2 - consider the responsibilities of a developer who proposes the construction of a 500-room hotel. Employment in some hotels has mounted to over two employees per room but, if we accept the ratios of table 5.2.2.1, this developer - if required to house all of his workers - might be saddled with housing for 500 basic workers (at 1.0 worker per hotel room) in 385 households (at 1.3 workers per household).

If, in addition to housing - or in lieu thereof - he were required to furnish certain community facilities or services for the workers and their families, this would be for a total of 1,462 persons (at 3.8 persons per household).

If, on the other hand, the developer were to be burdened with the responsibility for only the new residents attracted to the area by this employment (from the ratios developed by this survey) and not for those who are prior residents, this would suggest a need for only 170 households (at 2.24 workers per household or 0.34 households per hotel room) rather than 385 households, and responsibility for a total population increase of only 421 persons (at 2.48 persons per household) rather than 1,462 persons.

As indicated in table 5.2.2.1 this represents a difference in the estimated demand for housing of 1:2.26, and a difference in the demand for community facilities of 1:3.47. For an equitable sharing of responsibility, such estimates of housing demand might be applied directly. Demands for community facilities and services might be applied either directly - on a per capita base - or they might be related to estimates of total growth for a proportional sharing.

The findings vary from the general to the specific and the universality of such applications as these will vary as does the degree of breadth. The general principles and analytical procedures should have a constant degree of utility regardless of dissimilarities between the geographical areas of their derivation and their application.

The numerical material is largely specific to the areas and conditions of its derivation; it should not be applied elsewhere without a review of this derivation to determine its suitability and, if feasible, to make adjustments for differences.

To facilitate such reviews and adjustments and to guard against misapplications of material, the supporting data and procedures have been presented in more detail than will be required by the reader interested only in the generalities and conclusions. It has been said that the microscope is of little help in finding one's way across town. Both the microscope and the compass have their uses, however, and it is expected that both microanalyst and the macroanalyst will find material of value.

This study is not considered a closed subject but an open-ended addition to the prior efforts of others. Gates have been purposely left ajar and loose ends deliberately left untied to attract the attention of statisticians and analysts with further contributions to insert or append.

APPENDIX APersonal Income from the Tourist Industry in Hawaii

The total personal income generated by an industry is a major factor in an assessment of that industry's benefits to a community. Since estimates of this income will be compared with similar estimates for other industries and other communities a clear definition of terminology and methodology is essential. Hawaii's economists have, in some instances, accompanied their estimates with such uncommonly clear statements of the process that misapplications and inappropriate comparisons are unlikely. (FIRST NATIONAL BANK OF HAWAII, ca.1962; HITCH, 1972b)

Figure A.1 has been devised for a diagrammatic presentation of this process as its application has been observed - moving from the initial gathering of data through the successive steps to the final figure representing an estimate of total income. A brief discussion of each step will explain the principles and the derivative relationships but, first, in summary:

1. Basic research is initiated for the collection of data in three fields - that of:
 - i. visitor expenditures (figure A.1/a), to determine the distribution pattern of expenditures by the tourists (figure A.1/d), and the total amount of expenditure by the tourists (figure A.1/g);
 - ii. the regional economy, to determine the import propensity of the region's suppliers of goods and services (figure A.1/b), and
 - iii. the regional residents, to determine the distribution pattern of their expenditures (figure A.1/c).

FIGURE A.1 The process of estimating the regional total personal income from the tourist industry

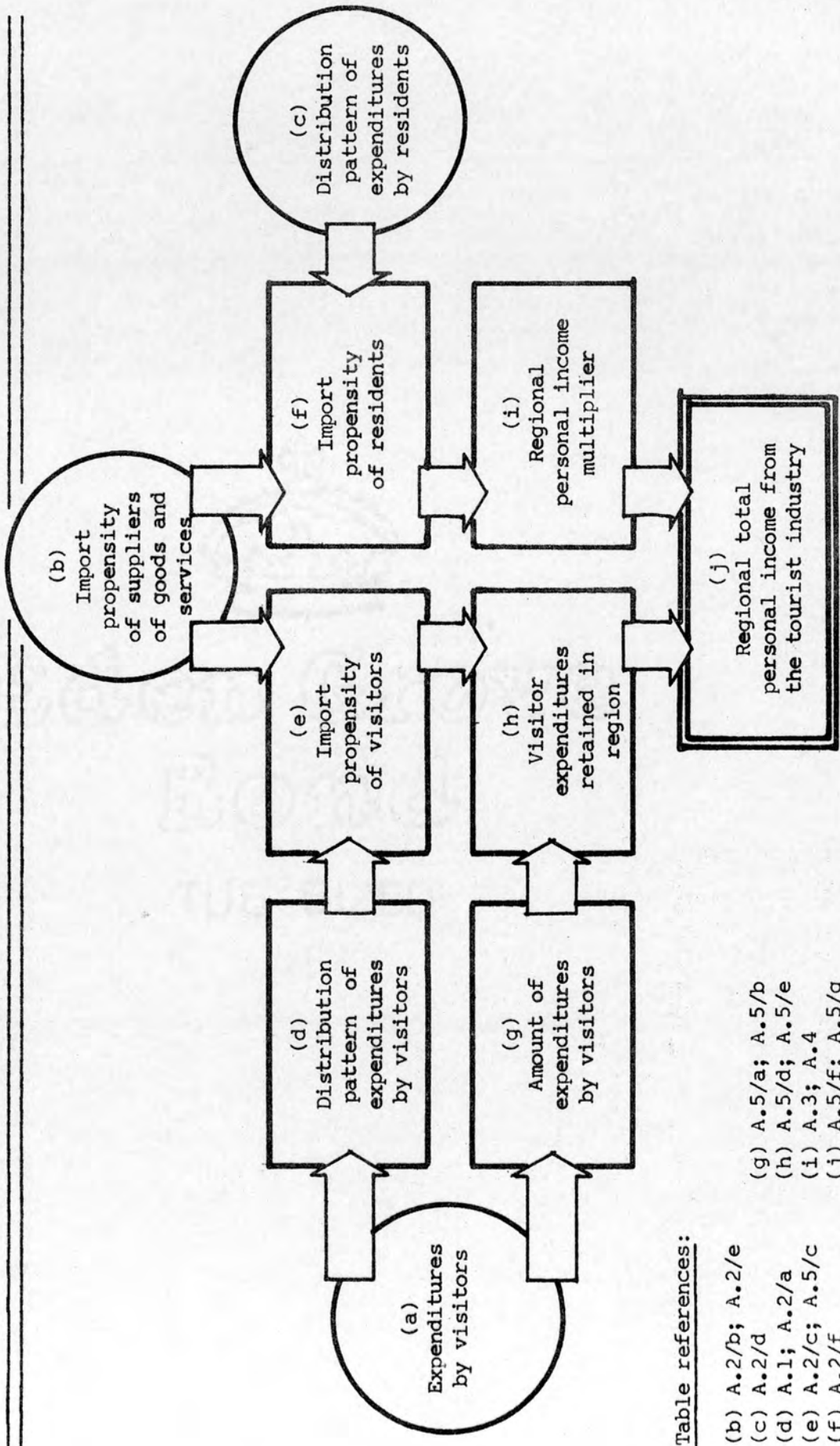


Table references:

- (b) A.2/b; A.2/e
- (c) A.2/d
- (d) A.1; A.2/a
- (e) A.2/c; A.5/c
- (f) A.2/f
- (g) A.5/a; A.5/b
- (h) A.5/d; A.5/e
- (i) A.3; A.4
- (j) A.5/f; A.5/g

2. The propensity of the tourists to import goods and services (figure A.1/e) is determined by applying the import propensity of the suppliers (figure A.1/b) to the distribution pattern of the tourist expenditures (figure A.1/d).
3. The propensity of the residents to import goods and services (figure A.1/f) is determined by applying the import propensity of the suppliers (figure A.1/b) to the distribution pattern of the resident expenditures (figure A.1/c).
4. The amount of the visitor expenditure that remains in the region after the losses for the purchase of imported goods and services (figure A.1/h) is determined by applying the import propensity of the tourist (figure A.1/e) to the total amount of the visitor expenditure (figure A.1/g).
5. The regional personal income multiplier (figure A.1/i) is derived from the import propensity of the regional residents (figure A.1/f).
6. The regional personal income from the tourist industry (figure A.1/j) is determined by applying the multiplier (figure A.1/i) to the amount of the visitor expenditure retained in the region (figure A.1/h).

This brief statement has two purposes: first, it forms a check list of considerations that cannot be disregarded in evaluating the income effect of an industry and, second, it relates these in a rational sequence as a derivative process. Each step could be the subject of an extended review. Although this is not possible here, further definition, in outline form, will be undertaken since the process itself, each individual step in

the process, and the final result are of utmost importance in determining the place of tourism in a community's aims and objectives, providing the basis for all related evaluations and planning decisions.

Amount of expenditures by visitors (figure A.1/g). - Visitor expenditures can only be estimated from value judgments of indices - varying in dependability - such as the estimated individual visitor expenditure per day, the number of visitors, and the average length of a visitor's stay. Obviously none of these can be determined with precision for there are no precise records and no all-inclusive industry profit and loss or tax statements as with the sugar and pineapple industries in Hawaii - industries with which tourism is compared.

A reference to Hawaii's experience is of value for comparison since, as has been noted, this state is one of the most thoroughly documented areas in the nation; because of its distinctive island geography and economy it is one of the most documentable areas.

Hawaii's recognized authority in the recording or estimating of visitor data is the Hawaii Visitors Bureau who publish regular statements of many indices including an estimate of the visitors' expenditures. This figure, however:

is derived not from an actual survey during the year but from estimates based on a survey of expenditures made in 1952. The increase of total visitor expenditures, based primarily on the estimated change in the length of stay of visitors, may be subject to wide margins of error. (FIRST NATIONAL BANK OF HAWAII, 1963, p.12)

This potential for error is recognized and corrections are made when they seem warranted (HAWAII VISITORS BUREAU, 1971b, p.1).

Estimates include not only gross numbers but detailed information regarding the visitor's origin, reason for visit, length of stay, final destination, age, sex, type of accommodation, whether member of group or independent; all of which can be extracted from passenger information forms filled out by visitors (optionally) on arrival. The actual numbers of arrivals and departures are, of course, available and these can be compared with the number of executed forms to confirm the accuracy and completeness of the totals. From the recorded data, estimates can be made of the composition of those in doubt.

This approach might be considered the application of a micro technique on a macro scale, with the advantages of each tending to cancel the weakness of the other. These two categories have been described by ARCHER (1973, p.19) who also calls them direct (micro) and indirect (macro). Briefly, it can be stated that the micro approach generally involves a direct sampling of the product; this sample is then multiplied to represent the whole, of which it is assumed to be typical. The potential for error that exists, in such sampling and such an assumption, is the obvious weakness of the method; the broader the sample, the less the error. Hawaii's ability to sample virtually the total field gives the estimates a relatively high degree of validity.

The macro approach is generally one of disaggregating general data such as national totals to obtain regional or state estimates. Ratios of known local factors such as vehicle mileage or sales may be applied to national estimates for proportional division although the degree of correlation may be low. "In

general the indirect methods of estimating tourist expenditure depend upon too many assumptions untested by empirical research."

(Ibid, p.23) The responsibility is passed to those who have prepared the macro figure and the basis for their computations is rarely known.

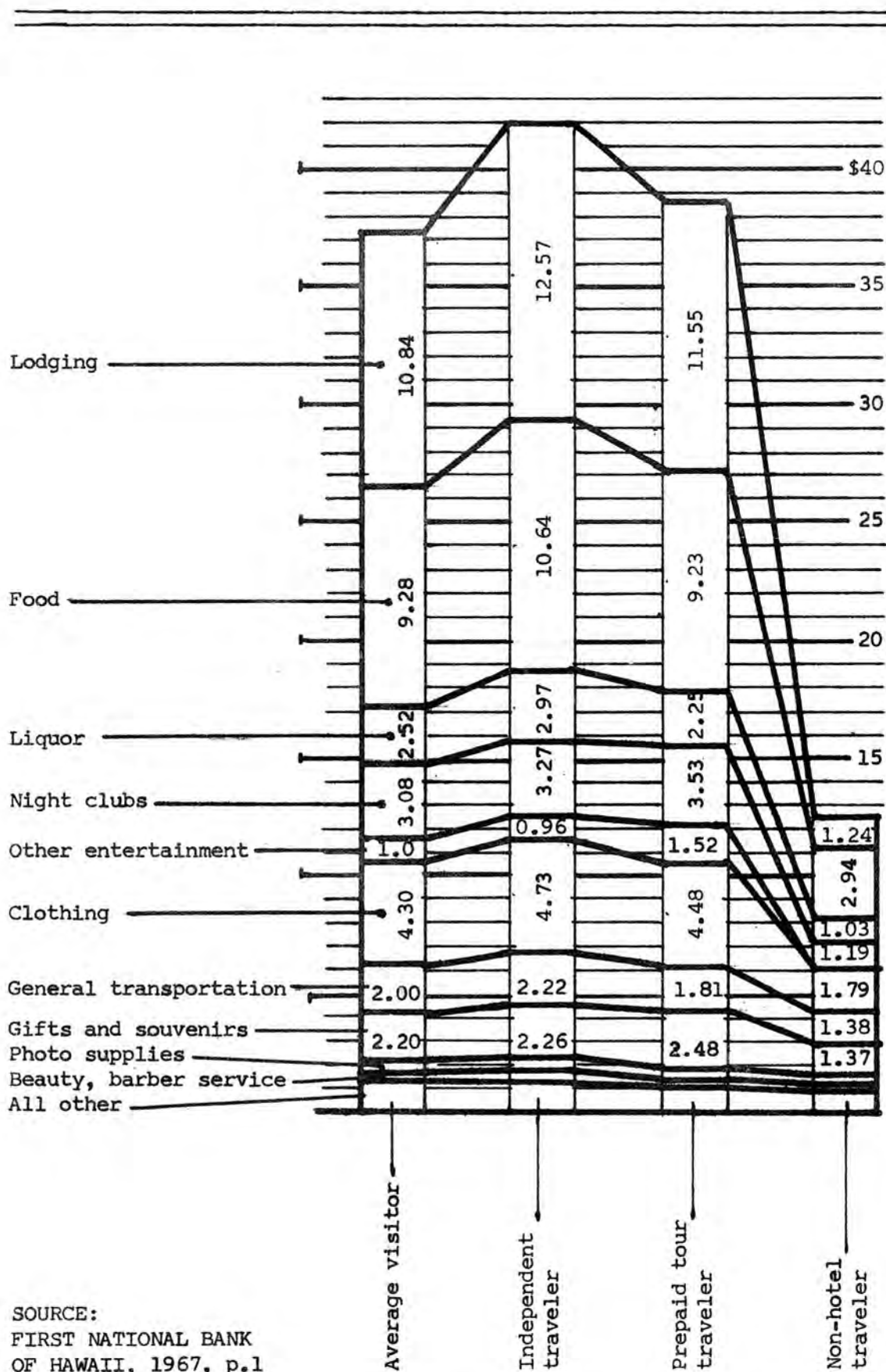
If current conditions cannot be determined accurately it is impossible to check previous estimates with any greater degree of accuracy; the very useful technique of feedback becomes inoperative. If both macro and micro techniques are possible, as in Hawaii, one can be used to check the other. In such a fragmented industry as tourism any means of checking or confirming assumptions is of particular value. National census figures, tax records, gasoline consumption, hotel occupancy figures - all can be woven together and integrated to correct or to reinforce the pattern.

Distribution pattern of visitor expenditures (Figure A.1/d, tables A.1 and A.2/a). - Hawaii's estimates of how her visitors spend their money are based on the same seminal report of 1952 referred to above as the basis of estimated expenditure volume. In 1957 this was reviewed by a group of merchants meeting with the research department of the Hawaii Employers' Council. (FIRST NATIONAL BANK OF HAWAII, 1963, p.36) The division by goods and services was apportioned by types of establishments as indicated on Table A.1. In 1967 a further refinement was offered (FIRST NATIONAL BANK OF HAWAII, 1967, p.1) in which the percentages were applied to assumed daily expenditures of \$37.23 for

TABLE A.1 Distribution of visitor expenditures (in percentages) (SOURCE: First National Bank of Hawaii c.1963)

Goods or Service	TOTAL	Establishment														
		Hotels	Hotel apts. & apartments	Restaurants	Food stores	Liquor stores	Clothing & accessory stores	Jewelry, gift & souvenir stores	Department and variety stores	Drug stores	Photography stores	Inter-island transportation	Ground transportation	Tour agents	Miscellaneous	
Lodging	25.4	18.0	7.4													
Food	32.0	9.2		13.7	4.6								4.5			
Gifts & Souvenirs	10.7										5.7	4.0	1.0			
Clothing	10.1								4.0	0.5	5.6					
Beverages	6.8	1.9		2.9				1.3					0.7			
Inter-isle Trsp.	4.5											4.5				
Ground Trsp.	3.6													3.6		
Personal care, Drugs & cosmetics	3.5											1.0	2.0		0.5	
Photography	2.0												0.5	1.5		
Tour agents	1.2														1.2	
Miscellaneous	0.2															0.2
TOTAL	100.0	29.1	7.4	16.6	4.6	1.3	4.0	6.2	10.6	8.7	1.5	4.5	3.6	1.2	0.7	

FIGURE A.2 Visitor expenditures per visitor day on Oahu 1965-1966 (in dollars)



SOURCE:
 FIRST NATIONAL BANK
 OF HAWAII, 1967, p.1

all visitors, \$41.89 for independent travellers, \$38.61 for pre-paid tour travellers, and \$12.50 for non-hotel travellers. Categories were also changed by adding items for "night club" expenditures, and "other entertainment". The individual percentages were changed to some degree; lodging was about 4% higher and food 7% lower, gifts and souvenirs 4% lower, travel costs 4% lower, and miscellaneous costs about 3% higher; other differences were within one or two percent. (figure A.2)

These figures, as with the estimates of total expenditure, must be considered as a mix of hard facts with value judgments or educated guesses. The fact that they can be traced back to an estimate of 1952 might be cause for concern; conditions have most certainly changed since then. On the other hand, however, since the problem has been under close observation for this period and since the estimates have been used and adjusted over that period some assurance is seen that serious errors have been eliminated.

The propensity of suppliers to import goods and services. (Figure A.1/b and Tables A.2/b and e). - This is a regional characteristic which is, theoretically, independent of the source or the amount of the community income; it is applicable to all other external sources of such income, as well as from tourism.

As a measure of the independence of the economy it is determined by the percentage of the community's goods and services that must be imported. A meticulous tracing of the purchase practices of all firms involved in the chain of supply must be

TABLE A.2 Propensity of visitors and residents to import goods and services (SOURCE: First National Bank of Hawaii c.1963)

	Distribution of each dollar spent	Percent remaining in state	Local income created by expenditure of each dollar
<u>VISITOR EXPENDITURES</u>	(a)	(b)	(c)
Hotels	\$0.291	62%	\$0.180
Hotel apartments & apartments	0.074	61	0.045
Restaurants	0.166	59	0.098
Food Stores	0.046	51	0.024
Liquor stores	0.013	34	0.004
Clothing & accessory stores	0.040	56	0.022
Jewelry, gift, and souvenir stores	0.062	40	0.025
Department and variety stores	0.106	46	0.049
Drug stores	0.087	35	0.031
Photography stores	0.015	43	0.007
Inter-island transportation (air)	0.045	61	0.027
Ground transportation	0.036	63	0.023
Tour agents	0.012	71	0.009
Miscellaneous and personal services	0.007	55	0.005
T O T A L	\$1.00		\$0.548
<u>RESIDENT FAMILY EXPENDITURES</u>	(d)	(e)	(f)
Food	\$0.321	51%	\$0.163
Housing	0.093	60	0.056
Fuel, lighting & refrigeration	0.030	33	0.010
Household operation	0.040	55	0.022
Furnishing and equipment	0.063	46	0.029
Clothing	0.076	50	0.038
Automobile	0.168	40	0.067
Other transportation	0.018	61	0.011
Medical care	0.043	53	0.023
Personal care	0.026	54	0.014
Recreation, reading & education	0.078	55	0.043
Alcoholic beverages & tobacco	0.020	35	0.007
Other goods and services	0.024	54	0.013
T O T A L	\$1.000		\$0.496

followed. All payments to out-of-state sources must be identified - both direct payments and indirect payments through agents. Payments for both goods and services of all descriptions are recorded: durable goods, nondurable goods, transportation, communications, finance charges, insurance, management services, any item for which payment might leave the area.

All sources of information must be examined: tax records, accounting records, and research studies by public, quasi public, and private agencies. Ratios for each establishment and commodity in the distribution pattern of expenditure is needed.

The basic trend of the community character toward thrift or spendthrift tendencies is here established in detail, i.e., the regional ability to retain and use its income - to shift it from one pocket to another without carelessly dropping it or losing it from holes in the pockets.

Available reference material speaks of all import expenditure as a loss. Data sources do not indicate whether the usual balance sheet distinction is made between import expenditures for services and consumer goods, on the one hand - wherein the loss would be taken currently as operating expense - and, on the other hand, expenditures abroad for property such as land, buildings, improvements, machinery, and equipment that are entered as inventory assets - the loss being taken, as with other property assets, in the form of depreciation over an extended period of time.

In an area such as Hawaii where virtually all building materials and equipment are imported, and in an industry such as tourism with a large expenditure for building and equipment, such a matter of bookkeeping practice can make a considerable difference - particularly if comparisons are to be made with areas whose practice is dissimilar.

Distribution pattern of expenditures by residents (Figure A.1/c and table A.2/d). - In 1951 a comprehensive study of the pattern of family expenditures in Hawaii was done by the U.S. Bureau of Labor Statistics. Only office workers were covered, but patterns covered families of different sizes and incomes.

These data were used in a 1971 analysis of the effects of exports on income in Hawaii (HITCH, 1972b, p.18) - an analysis which is generally recognized as Hawaii's most authoritative. The pattern selected was adapted to an average family of 4.29 persons with an income after taxes of \$5,000 to \$6,000. Income and expenditure have certainly changed in amount since the seminal study but they have probably not changed as much in pattern. Such a pattern might be expected to adjust to the long swings of sociological and demographic change rather than to the short-term economic shifts.

The import propensity of the tourist (Figure A.1/e and table A.2/c). - The tourist's propensity to import is expressed either negatively, as the proportion of the tourist expenditure that leaves the region for the purchase of imported goods and services, or it is expressed positively as the proportion of the tourist expenditure that remains in the region after the first initial expenditure by the visitor. The ratio is a sum of the individual ratios for each and every item identified in the breakdown of tourist expenditure. These individual ratios (table A.2/c) are the product of the amount spent per tourist dollar for that item (table A.2/a) times the percentage of that purchase price that is retained in the region by the supplier (table A.2/b) and recirculated as income to another resident.

The Hawaiian calculation indicates a ratio of \$0.55 per dollar of tourist expenditure retained in the region as income. It can be seen that, while the supplier's import propensity is unique to the region (figure A.1/b), the tourist's import propensity (figure A.1/e) is unique to both the region and the individual industry of tourism within that region. That ratio can be considered applicable to no other region; it cannot be considered applicable to any other industry within that region.

Other analysts have estimated that the visitor dollar of expenditure encompassed "35 to 45 percent imports, consumer expenditures by citizens to require 50 percent imports, a federal tax drain of 17 percent of incomes and state government expenditures to encompass 20% imports." (CRAIG, 1963, p.37) An econometric model for forecasting income and employment in Hawaii produced an estimate of 53% imports for initial impact from tourist income, an equal amount from the sugar industry, and 67.4% imports deducted from pineapple's gross expenditure. (CHAU, 1970)

Viewing the wide range of variables it is understandable that estimates should vary - even in the same community. When the added complications of world wide variations in geography, language, economies, degrees of development, standards, aims, methodology, etc. appear, the problems of coordinating reports and data in comparable form seem a well nigh insurmountable task.

Hawaii's import of 45% for tourism has been compared with 22% for Kenya and 24% for Israel, "nearly half" for the Virgin Islands, 43% for the Bahamas, 60% for Trinidad and Tobago,

25% for Ceylon. These "data are necessarily very approximate but they tend to suggest that in island economies net foreign exchange proceeds from foreign tourism generally range from 50 to 70 percent of the gross receipts, while in other developing countries the proportion may well be rather higher - perhaps 70 to 80 percent and even more in countries which are able to satisfy the demand for all but the luxury type of consumer goods from domestic output." Some countries report a very low degree of import "that can be expected to rise as both the liberalization of the economy progresses and efforts are pursued to improve supplies of spirits and other imported commodities that are demanded by visitors." In this category we find Yugoslavia with only 2 percent of imports, Greece with less than 10 percent and "according to rough official estimates it is probably under two percent in the case of expenditure by visitors in the interior of Mexico" - excluding payments to international chain hotels. (UNCTAD, 1973, p.14)

Just how much meaning these comparisons have is difficult to assess. As has been stated, it is difficult enough to compare varying estimates within a single region when one such estimate is backed by the printout of an elaborately constructed model by a planner skilled in mathematics but not in the ways of the world, and another estimate is backed only by the value judgments of one with a broad empirical approach.

The subject is so extensive that reports cannot explain in detail all sources of all material. The analyst's evaluation of data's relative importance may be valid for his immediate audience

but it may leave the planners of another region with an erroneous interpretation.

The estimate for the Banamas illustrates well the statistical difficulties which have been referred to above. While the hotel portion of visitor expenditures could be analysed from a hotel study made by a firm of accountants, the analysis of remaining expenditures is the result of "educated guesswork". The technical reliability of the hotel sample is difficult to assess, since it is based on unaudited figures and on a proportionately smaller sample of hotels at Freeport than at Nassau. Furthermore, only direct imports could be ascertained, and the total foreign exchange outflow of 43 per cent is estimated on the assumption that 25 per cent of wages and profits earned by foreign concerns or expatriate labour are remitted abroad and that the import content of domestically produced goods and services supplied to visitors is also 25 per cent. (UNCTAD, 1973, p.14)

Despite these difficulties certain generalities emerge; some fundamental theory seems reasonable and backed by experience:

1. Economic independence implies a low proportion of import, ergo, a high proportion of income is retained. Independence can be achieved by competence as in a large, self-sufficient national economy, or it can be forced by geographical, social, or political isolation.
2. Dependence on imports is associated with smaller economic units and with the specialized, narrow economies.

The continental national economies are more independent than those of the state or small nation; these in turn are more independent than the county and, in descending order, the city, the neighbourhood, the family, and the individual. Isolation can be forced or reinforced by the limitations of the one-industry community, a weakness in communications, or difficulties of transportation: the remote farm, the Iron Curtain, the Eskimo village, the U.N. sanctions, the company town, the resort.

The import propensity of the regional resident (Figure A.1/f, Table A.2/f). - We speak of the import propensity of the tourist sector and, here, of the import propensity of the resident. In actuality importation is determined in the market place by the supply sector reacting with the tourist and resident buyer. The buyer determines what shall be bought (in theory) and the supplier determines whether the purchase shall be imported or produced locally.

The discussion of the tourist import propensity is just as pertinent to the propensity of the regional resident. The two vary only in the makeup of their purchases. In some areas the tourist may tend to purchase more goods with a high import content; in other areas the resident may have a higher propensity; the important thing is that they be considered independently. They have a relationship through their common dependence on the regional supply, and this introduces a degree of correlation but no relationship of cause-and-effect can be assumed.

The regional personal income multiplier (Figure A.1/j). - There has been brief mention in section 2.1.1 to the "multiplier principle" whereby capital moves through a community, creating income for successive persons, until it has been reduced, through payments for imports, to insignificance. It has been stated that the relationship between the amount of capital originally entering the economy and the final aggregate amount of income realized by the community is commonly stated as a multiple of the original capital, and is termed the multiplier.

The broad authoritative acceptance of the multiplier principle has lent an air of unwarranted authenticity to its most off-hand applications. The concern being felt over the looseness of this use has been pointed up as the incentive for the formulation of figure A.1 and this subsequent definitive discussion.

Table A.3 presents in outline form the derivation of "The Hawaiian Multiplier" as it is seen by an Hawaiian economist. In a series of "rounds" the original injection of income (the net amount of visitor expenditure retained in the region after deductions for imported goods and services - figure A.1/h) which, for the purposes of this derivation is assumed to be one dollar, is successively reduced by payments for taxes, savings, and for imported goods and services. As indicated on table A.2/f one half (0.504) of the expenditure for goods and services is lost to the region through payment for imports; the other one-half (0.496) is retained as income in Hawaii and moves to the second round as such income. Savings and taxes are set at 16 percent "assuming that Hawaiian residents saved or paid out in Federal income taxes about the same proportion of personal income as on the mainland." (HITCH, 1972b, p.20)

To this author, the process can be more easily understood as presented on table A.4 in which the same figures are used for comparison. In account #1, one dollar is received as income from export sales (tourism); 16 percent, or \$0.16, is spent on taxes and savings, and the remaining \$0.84 is spent with \$0.42 going for imported goods and services (and, therefore, lost), and \$0.42 being spent for local goods and services and, therefore reappearing in local account #2, as income, where the same

TABLE A.3 The Hawaiian multiplier

(SOURCE: HITCH, 1972)

	Income to residents of Hawaii	Federal income tax and savings	Expenditures			Total leakages + savings
			Total	Income remaining in Hawaii	Leakages from expenditures	
1st Round	\$1.00	.16	.84	.42	.42	.58
2nd Round	.42	.067	.353	.176	.176	.243
3rd Round	.176	.028	.148	.074	.074	.102
4th Round	.074	.012	.062	.031	.031	.043
etc.-----	.031	----	----	----	----	----
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Total	\$1.72	.28	1.44	.72	.72	1.00

TABLE A.4 Balance sheet of the Hawaiian multiplier

	Credit	Debit	Balance
<u>ACCOUNT #1</u>			
Received from export sales	\$1.00		1.00
Federal taxes and savings		0.16	0.84
Import expenditure		0.42	0.42
Local expenditure to acc't #2		0.42	0.000
<u>ACCOUNT #2</u>			
Received from acc't #1	0.42		0.42
Federal taxes and savings		0.067	0.353
Import expenditure		0.176	0.176
Local expenditure to acc't #3		0.176	0.000
<u>ACCOUNT #3</u>			
Received from Acc't #2	0.176		0.176
Federal taxes and savings		0.028	0.148
Import expenditure		0.074	0.074
Local expenditure to Acc't #4		0.074	0.00
<u>ACCOUNT #4</u>			
Received from account #3	0.074		0.074
Federal taxes and savings		0.012	0.062
Import expenditure		0.031	0.031
-----	-----	-----	-----
etc.-----	---	---	---
T O T A L	1.72	1.72	---

sequence recurs. These expenditures continue - moving from one account to the next - being reduced at each exchange until the original capital is reduced to inconsequentiality. At that point the total credits and debits are both equal to \$1.72. In other words, for each dollar of capital entering the economy, \$1.72 of income is realized; ergo, the multiplier is equal to 1.72.

Savings and taxes are here treated as separate and distinct forms of income leakage but this is by choice and not necessity. The differences may be more semantic than economic but it seems more consistent to view capital as an ordinary trade commodity, and taxes as payments for goods and services.

As a commodity, capital can be (1) exchanged for other commodities (spent in payment for goods and services); as "savings" it can be either (2) stored as an inventory item (e.g., under the bed), or (3) leased, i.e., placed at the disposal of others through normal investment channels (banks, savings and loan associations, stock investment, etc.). Savings, as such, do not necessarily constitute leakages. As inventory items they have a credit value; if invested (leased) outside of the community they become sources of export income through the return of dividends and interest.

Taxes are, in reality, payments for goods and services provided by government. As such, these expenditures are subject to import losses or to retention and recirculation as any other payments for goods and services. Part of these expenditures (taxes) will be spent locally for governmental services and government-financed projects. As such, these cannot be considered

as a source of new money except as the ratio of local to national federal expenditures may be out of proportion to the ratio of local to national tax receipts. Payments such as for the maintenance of national and international government services will involve substantial leakages as will any payments for external or imported managerial or administrative services - e.g., as to insurance firms or chain hotel corporations.

It is unquestionably expedient but hardly factual to consider all local federal taxes as leakages and all local federal expenditures as "new money" or export income. As the scope of government services expands the distinction between private and public activity becomes less clear and the reasons for recognizing such distinctions become less certain. The import propensities of government agencies at the Federal and local levels would vary; the determination of these propensities would provide the planner with a most useful tool for effectively analyzing the costs and benefits of governmental services, and for comparing these with private industries.

Once the process of figure A.1 has been performed the multiplier can be found a useful rule-of-thumb shortcut but for only a portion of the process. Unless a change is noted in the import propensity of the regional suppliers or in the distribution pattern of resident expenditure, it should not be necessary to calculate again the resident's propensity to import or to derive the multiplier again therefrom.

With an understanding of the ratio's derivation it is possible to form many variations and to define them clearly for proper use.

The general personal income multiplier can be extended (or restricted) for use as a personal income multiplier for only the tourist industry by multiplying it by the tourist import propensity ($1.72 \times 0.55 = 0.946$). (GHALI, 1970, p.30) This multiplier would then be applied to the gross amount of the visitor expenditure (figure A.1/g) rather than to the net expenditure retained in the region (figure A.1/h).

In a study of tourism in Anglesey, noted by ARCHER (1973, p.55), the characteristics of five categories of visitors were distinguished to produce multipliers for each: hotel (0.3063), farmhouse and bed & breakfast (0.7614), caravan (0.2171, tent (0.3097), and composite (0.3260). As noted in section 3.1, such distinctions are of little interest in Hawaii where the car-born transient does not exist and the bulk of visitor volume is accommodated in hotels. Other classifications, however, have proved of value; section 2.3.1 refers to a study which subdivided tourist into 36 different categories according to age, income, and region of origin - developing significantly different benefit-cost ratios for each. (MATHEMATICA, 1970a, 1970b)

Visitor expenditures retained in the region (Figure A.1/h). -

The portion of the total visitor expenditure that leaves the region and the portion that is retained for recirculation are determined by multiplying the total expenditure (figure A.1/g) by the import propensity of the tourist (figure A.1/3) which from table A.2/f has been shown to be 55 percent retained and 45 percent lost.

Regional total personal income from the tourist industry (Figure A.1/j). - This final figure which has been the objective of the exercise is a multiple of the regional personal income multiplier (table A.1/g) and the amount of visitor expenditure retained in the region (table A.1/h).

A significant usage of these principles is developed in the comparisons of table A.5. The four principle export industries are treated in a comparable way to demonstrate (1) their relative contributions to the Hawaiian economy, (2) the portion of the total economy accounted for by each, (3) the portion of the total economy accounted for by the four combined, and (3) the trend indicated by the change in the ten-year period.

The critical nature of the industry's import propensity (column c) is clear. The defense expenditures, which are the highest in the gross expenditure (columns a and b) also have the highest percentage of retention since the largest portion of the total is spent for wages. Pineapple import propensity is the highest - just edging out the tourist propensity - since the product is processed locally, necessitating the importation of tin plate, solder, labels, and cartons.

Perhaps the most significant indication is in the growth trend of tourism which is the only industry increasing its proportion of the whole. The decline in agricultural revenues from both sugar and pineapple is cause for concern.

These comparisons show the importance of uniform practice. Differences in the application or derivation of any factor would cancel comparability.

TABLE A.5 Hawaii personal income developed by export industries

(SOURCE: HITCH, 1972)

	Dollars spent or received in Hawaii (\$ millions)		%	Dollars initially retained in Hawaii (\$ million)		Personal Aggregate income developed by 1.72 regional multiplier (\$ millions)		Personal Aggregate income as a % of total state income	
	1960 (a)	1971 (b)		1960 (d)	1971 (e)	1960 (f)	1971 (g)	1960 (h)	1971 (i)
Defense expenditures	351	709	79	277.3	560.1	477	963.4	32.3	25.3
Visitor expenditures	131	645	54	70.7	348.3	121.6	599.1	8.2	15.7
Sugar revenues	127	210	67	85.1	140.7	146.4	242.0	9.9	6.4
Pineapple revenues	119	135	53	63.1	71.6	108.5	123.2	7.3	3.2
TOTAL	728	1,699	-	496.2	1,120.7	853.5	1,927.7	57.7	50.6

References

- ANDREWS, Richard B. (1954) Special problems of base identification, Land Economics, Aug. 260-269. Cited by PFOUTS (1970).
- _____. (1955) The concept of base ratios, Land Economics. 47-53. Cited by PFOUTS (1970).
- AN FORAS FORBARTHA (1966) Planning for amenity and tourism: specimen development plan manual 2-3. Dublin: The National Institute for Physical Planning and Construction Research.
- ARCHER, Brian (1973) The impact of domestic tourism. Bangor Occasional Papers in Economics, ed. Jack Revell. Bangor: University of Wales Press.
- ARTLE, R.A. and R.W. RIDER (1966) The Hawaiian economy, problems and prospect. Hawaii, Department of Planning and Economic Development, Table 19. Cited by CHAU, 1970, p.9.
- ASHWORTH, Graham (1973) Encyclopedia of Planning, London: Barrie & Jenkins.
- BIRD, Ronald and Frank MILLER (1962) Contributions of tourist trade to incomes of people in Missouri Ozarks. Columbus, Missouri: University of Missouri.
- BLUMENFELD, Hans (1955) The economic base of the metropolis, Journal of the American Institute of Planners 21, 114-132.
- Britain and international tourism. Central Office of Information reference pamphlet No.102. London: HMSO.
- BRYDEN, J. and M. FABER (1971) Multiplying the tourist multiplier, Social and Economic Studies 20, part I, University of the West Indies. Cited by UNITED NATIONS (1973) 20.
- CATANESE, Anthony J. (1972) Testing of an emerging model of State planning: a report card. An unpublished report for the Graduate Planning Program of the Georgia Institute of Technology.
- CHAPIN, F. Stuart (jr.) and Henry C. HIGHTOWER (1965) Household activity patterns and land use, Journal of the American Institute of Planners, 31, 222-31.
- _____. (1967) Existing techniques for shaping urban growth, Taming Megalopolis. Vol.II, Eldridge H. Wentworth, Ed. New York: Doubleday, Anchor.

- CHASE MANHATTAN BANK (1968) The U.S. Virgin Islands: special report. World Business No.11. New York. Cited by UNCTAD, 1973, p.14.
- CHAU, Lawrence C. (1970) An econometric model for forecasting income & employment in Hawaii. Honolulu: Economic Research Center, University of Hawaii.
- CHECCHI AND COMPANY (1969) A plan for managing the growth of tourism in the Commonwealth of the Bahama Islands. Washington, D.C. Cited by UNCTAD, 1973, p.14.
- CHING, A. Y. and T. SAHARA (1969) Land use and productivity rating, State of Hawaii: 1968. Land Study Bureau Circular No.15, Honolulu: Land Study Bureau, University of Hawaii. Cited by HAWAII, DPED, 1972c, pp.76, 188.
- CHU, Esme (1965) An economic study of the county of Maui, Vol. II; past development and future growth of tourism. Honolulu: Economic Research Center, University of Hawaii.
- CLEMENT, H.G. (1961) The future of tourism in the Pacific and Far East. U.S. Department of Commerce. Cited by UNITED NATIONS (1973) 19.
- COUNTRYSIDE COMMISSION (1969) Policy on country parks and picnic sites. London: HMSO.
- DOXIADIS ASSOCIATES (1969) Tourist projects - special issue. DA Review, July.
- ECONOMIC DEVELOPMENT COMMITTEE (EDC) FOR HOTELS AND CATERING (1967) Your Manpower. London: HMSO.
- FABIAN SOCIETY (1969) Leisure, transport and the countryside. Fabian Research Series 277. London.
- FIRST HAWAIIAN BANK (1972a) Hawaii in 1972. . .and beyond. Honolulu: Research Division, First Hawaiian Bank.
- _____. (1973a) Hawaii in 1973. Honolulu: Research and Planning Division, First Hawaiian Bank.
- _____. (1973b) Hawaii: the most vulnerable state in the nation. Honolulu: Research Division, First Hawaiian Bank.
- _____. (1972c to 1974c) Economic indicators. Honolulu: Research and Planning Division, First Hawaiian Bank.

- FIRST NATIONAL BANK OF HAWAII (1963) The impact of exports on income in Hawaii. Honolulu: Department of Economic Research, First National Bank of Hawaii.
- _____. (1967) Visitor expenditures in Honolulu, Economic Indicators. Honolulu: Department of Economic Research, First National Bank of Hawaii. November, p.1.
- FOLEY, Donald L. (1964) An approach to spatial structure. In Melvin M. WEBBER, (ed.) Explorations in urban structures. Philadelphia.
- GEE, Chuck Y. (n.d.) Employment opportunities created by tourism development. An unpublished paper presented at the University of Hawaii.
- GHALI, Moheb (1970) A survey of the planning and forecasting models for the State of Hawaii. Honolulu: Economic Research Center, University of Hawaii.
- GREAT BRITAIN, Countryside (Scotland) Act 1967: Chapter 86. Elizabeth II, London: HMSO.
- GREAT BRITAIN, MINISTRY OF OVERSEAS DEVELOPMENT (1967) Report of the tripartite economic survey of the eastern Caribbean. London: HMSO 10-13. Cited by UNCTAD, 1973, p.13.
- GREAT BRITAIN, Countryside Act 1968: Chapter 41. Elizabeth II, London: HMSO.
- GUTTENBURG, Albert Z. (1959) A multiple land use classification system. Journal of the American Institute of Planners, 25. 143-150.
- HARDIN, Garrett (1970) The tragedy of the commons in Garrett De BELL (ed.) The Environmental Handbook. New York: Ballantine/Friends of the Earth.
- HARRIS, Britton (1966) The uses of theory in the simulation of urban phenomenon. Journal of the American Institute of Planners 32, 258-73.
- HARRIS, KERR, FORSTER & COMPANY (1960) Visitor destination areas in Hawaii, Part IV - Hawaii Hotel operation, an analysis for private investment. Cited by CHU (1965) p.89.
- _____. (1974) Statistical data provided for the Hawaii Hotel Association. Cited by Hawaii Visitors Bureau (1974).
- HAWAII CHAPTER AMERICAN INSTITUTE OF ARCHITECTS (1971) The physical development of Pacific island tourism. A conference jointly sponsored with the School of Travel Industry Management, University of Hawaii, and the Tropical and Development Studies Program, University of Hawaii, Honolulu.

- HAWAII COUNTY (1965) Population and housing statistics by census, County Division, Hawaii County: 1960. Department of Economic Development, Hilo, Hawaii.
- _____. (1964-1970) Annual Reports, Police Department, County of Hawaii, Hilo, Hawaii.
- HAWAII, COMMISSION ON MANPOWER AND FULL EMPLOYMENT (CMFE) (1972) Coordination and human resource planning in the Hawaii visitor industry. Honolulu.
- HAWAII, DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS (DLIR) (1970) Hotel manpower requirements study. The Rohr Company and Kentron Hawaii, consultants, Honolulu.
- HAWAII, DEPARTMENT OF HEALTH (1967) Health surveillance survey, 1964-1967. Honolulu.
- HAWAII, DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT (DPED) (1967) State of Hawaii General Plan Revision Program: in six parts, Honolulu.
- _____. (1968) Comprehensive outdoor recreation plan. Donald Wolbrink & Associates, Inc., and Arthur D. Little, consultants, Honolulu.
- _____. (1970) 1969 State of Hawaii land use districts and regulations review. Eckbo, Dean, Austin and Williams, consultants, Honolulu.
- _____. (1971a) State comprehensive outdoor recreation plan. (SCORP) Marshall Kaplan, Gans, Kahn, and Yamamoto, consultants, Honolulu.
- _____. (1971b) North Kohala household survey, Honolulu.
- _____. (1972a) Tourism in Hawaii: Hawaii tourism impact plan, Volume I: Statewide. Honolulu.
- _____. (1972b) West Hawaii: Hawaii tourism impact plan, Volume II: Regional. Honolulu.
- _____. (1972c) The State of Hawaii: Data book 1972: A statistical abstract. Honolulu.
- _____. (1971c, 1972d, 1973) Hawaii Economic Review, Vol. IX, No. 1 - Vol. X, No. 5. Honolulu.
- HAWAII VISITORS BUREAU (HVB) (1967) Report of the subcommittee on manpower. Honolulu: HVB Long Range Planning Committee, mimeographed. Cited by HAWAII, CMFE, 1972, p.33.
- _____. (1970) Recommended goals for Hawaii's visitor industry. Presented at the Travel Industry Congress, January 6 and 7, 1970.

- HAWAII VISITORS BUREAU (HVB) (1971) Revised visitor statistics: 1964-1970.
- _____. (1973) 1972 Annual research report.
- _____. (1974) Statistical data provided as available.
- HELLER, Walter W. (1973) The U.S. economy in 1974: hard or soft landing? Presented at Business Outlook Forum, October 12, 1973. Honolulu: First Hawaiian Bank.
- HENDRICK, P., PFISTER, R.L., and SEGAL, M. (1962) Vacation travel business in New Hampshire - A survey and analysis. Concord, N.H.: New Hampshire Department of Resources and Economic Development.
- HIGHLANDS AND ISLANDS DEVELOPMENT BOARD (1973a) Hotel Occupancy Survey: 1972, Inverness: Planning and Research Division.
- _____. (1973b) Highlands and Islands Development Board seventh report: 1972. Inverness.
- _____. (1973c) Future population changes in the Moray Firth, Inverness.
- HILLEND AHL, Wesley H. (1971) The potential demand for housing by hotel employees in the Kona-South Kohala area. Honolulu: Department of Business Research, Bank of Hawaii.
- HITCH, Thomas K. (1960) Land prices in Honolulu. (Seminar) Honolulu: Department of Economic Research, First National Bank of Hawaii.
- _____. (1972a) The economic outlook for Hawaii, Business Outlook Forum: November 13, 1972, Honolulu: First Hawaiian Bank.
- _____. (1972b) The impact of exports on income in Hawaii: 1971. Honolulu: Research Division, First Hawaiian Bank.
- _____. (1973) Hawaii's business outlook. Presented at Business Outlook Forum, October 12, 1973, Honolulu: First Hawaiian Bank.
- HONOLULU AIRLINES COMMITTEE (1974) The airport & you. Honolulu: The Air Transport Association of America.
- INTERNATIONAL UNION OF OFFICIAL TRAVEL ORGANIZATIONS (IUOTO) (1968) The economic review of world tourism. Geneva.
- JERSEY (1967) Report of a survey carried out for the Tourism Committee in 1966 by the British Travel Association and Social Surveys (Gallup Pool) Ltd., Appendix II. Jersey: States' Printers.

- KAMM, Gregory and Bruce ETHERINGTON (1970) Recreative spaces as a measure of horizon population. Honolulu: University of Hawaii.
- KWAK, Kenneth (1971) Statistical report on the impact of a hotel industry on the employment situation in Waianae-Nanakuli. An unpublished preliminary draught.
- KENYA (1969) Development Plan 1970-1974. Nairobi: Republic of Kenya.
- LEAR, John (1971) Cities on the sea? Saturday Review, December 4, 1971, 80-90.
- LEVITT, K. and I. GULATI (1970) Income effect of tourist spending: mystification multiplied - a critical comment on the Zinder report. Social and Economic Studies, Vol.19, No.3. University of the West Indies. 329, cited by UNCTAD, 1973, p.20.
- LEWES, F.M.M., A.J. CULYER, and G.A.BRADY (1970) The holiday industry of Devon and Cornwall. Ministry of Housing and Local Government, London: HMSO.
- LIND, Andrew W. (1967) Kona: A community of Hawaii. (mimeographed).
- LOWERY, Ira (1963) Economic study of the Pittsburgh Region. The Rand Corporation.
- MADDEN, Ward (1968) Foreward to The unprepared society (MICHAEL, 1968).
- MAHONEY, Carl (1970) The physical development of tourism in Hawaii: a preparatory survey. Honolulu: Department of Architecture and the Economic Research Center, University of Hawaii.
- _____. (1971) Tourism and urbanization: the lesson of the outer Hawaiian Islands. A paper presented at the second South Pacific seminar, Laucala Bay, Suva, Fiji. Honolulu: University of Hawaii.
- MATHEMATICA (1970a) The visitor industry and Hawaii's economy: a cost-benefit analysis. Honolulu: Department of Planning and Economic Development.
- _____. (1970b) An island-specific analysis of the Hawaii visitor industry. Honolulu: Department of Planning and Economic Development.

- McCALL, Virginia and Joseph R. McCALL (1970) Your career in parks recreation. New York: Julian Messner.
- McCRACKEN, Paul W. (1972) Will the new expansion endure? Business outlook forum, November 13, 1972. Honolulu: First Hawaiian Bank.
- McLOUGHLIN, J. Brian (1970) Urban and regional planning: a systems approach. London: Faber and Faber.
- _____. (1973) Control and urban planning. London: Faber and Faber Limited.
- MERRIAM-WEBSTER (1967) Webster's seventh new collegiate dictionary. London: G. Bell & Sons, Ltd.
- MERRILL, LYNCH, PIERCE, FENNER AND SMITH (1972) Investment opportunities: changing leisure markets. New York.
- MICHAEL, Donald N. (1968) The unprepared society: planning for a precarious future. New York: Harper and Row.
- MIKLIUS, W. (1970) Some aspects of Hawaii's tourism. Paper presented at the ninth annual meeting, Western Regional Science Association in San Diego, California. Honolulu: Economic Research Center, University of Hawaii. Cited by UNCTAD (1973) p.23.
- MITCHELL, F. (1970) Integration of tourism in the plan: assessing the value of tourism. 1969 Dag Hammarskjöld Seminar on the development and promotion of tourism in Africa: Lectures, part 1. Uppsala: Dag Hammarskjöld Foundation. Cited by UNCTAD (1973) p.13.
- The new towns of Britain. (1972) Central Office of Information reference pamphlet 44. London: HMSO.
- NICHOLSON, Max (1970) The environmental revolution: a guide for the new masters of the world. Harmondsworth: Penguin.99
- OAHU DEVELOPMENT CONFERENCE (1968) Urban design study of the Honolulu waterfront. Honolulu: The State Foundation on Culture and the Arts.
- OUTDOOR RECREATION RESOURCE REVIEW COMMISSION (ORRR) (1962) Outdoor recreation for America. A report.
- PARKER, Stanley (1972) The future of work and leisure. London: Paladin.
- PFOUTS, Ralph W. (ed.) (1970) The techniques of urban economic analysis. West Trenton, N.J.: Chandler-Davis.

- PHILIPPINE REPUBLIC (1967) Statistics on travel and tourism 1957-1966. Manila: Board of Travel and Tourist Industry, and the Philippine Tourist and Travel Association. Cited by UNCTAD, 1973, p.19.
- POMPONI, Arnaldo (1971a) The economic outlook for the State of Hawaii: Research report No.71-1. Honolulu: Hawaii State Department of Planning and Economic Development.
- _____. (1971b) Economic forecasts for the State of Hawaii. Research report 71-2. Honolulu: Hawaii State Department of Planning and Economic Development.
- PRICHER, Lawrence (1971) Brewer's business is now "land management". Hawaii Business, July, 1971.
- REICH, Charles (1972) The greening of America, Harmondsworth: Penguin.
- SCHMITT, Robert C. (1967) How many Hawaiians? Journal of the Polynesian Society. 76:467-476.
- _____. (1968) Hawaii's tourism research. Honolulu: Hawaii State; Department of Planning and Economic Development.
- _____. (1969) Forecasting tourism in Hawaii. A paper presented to the Hawaii Chapter, American Statistical Association, October 2, 1969.
- SCIENTIFIC AMERICAN, INC. (1972) Continents adrift: readings from Scientific American: 1952-1972. San Francisco: W.H. Freeman & Co.
- SHANKLAND COX AND ASSOCIATES (n.d.) Planning for tourism: a professional record. London.
- SHANG, et al. (1967) Hawaii's income and expenditures, 1961-64, with certain revisions of previous estimates, 1958-1960. University of Hawaii, Economic Research Center, 1-15. Cited by CHAU, 1970, p.8.
- SHANKLAND, Graeme (1970) Basic principles in planning tourist settlements. A paper prepared for the United Nations' Seminar on physical planning for tourism, London: Shankland Cox and Associates.
- TABORI, Paul (1968) Companions of the unseen. New York: University Books.
- TARLING, D.H. and M.P. TARLING (1972) Continental drift: a study of the earth's moving surfaces. Harmondsworth, Penguin.

- TOUCHE, ROSS, BAILEY and SMART (1969) Report on the compensation structure for hourly employees of the Hawaii hotel industry for the year 1968. Honolulu: Hawaii Hotel Association.
- TOULMIN, S. (1953) The philosophy of science. London. Cited by McLOUGHLIN (1970) 60.
- Town and country planning in Britain, (1972) Central Office of Information reference pamphlet 9. London: HMSO.
- U.K., MINISTRY OF OVERSEAS DEVELOPMENT (1967) Report of the tripartite economic survey of the Eastern Caribbean. LONDON: HMSO. 10-13. Cited by UNITED NATIONS (1973) 13.
- UNITED NATIONS (1970) Interregional seminar on physical planning for tourism development. Dubrovnik: Office of Technical Co-operation and the Centre for Housing, Building and Planning of the United Nations in co-operation with the government of the Socialist Federal Republic of Yugoslavia.
- UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD), Secretariat (1971) Guidelines for tourism statistics. New York: United Nations.
- _____. (1973) Elements of tourism policy in developing countries. New York: United Nations.
- U.S., BUREAU OF LABOR STATISTICS (1962) Domestic employment attributable to U.S.exports: 1960. U.S.Department of Labor.
- U.S. BUREAU OF THE CENSUS (1972) Census of population: 1970 detailed characteristics: final report PC(1)-D13 Hawaii. Washington, D.C.: U.S. Government Printing Office.
- U.S. CONGRESS, JOINT ECONOMIC COMMITTEE (1963) Economic report of the President, Part 1. Hearings, January, 1963, Washington, D.C.: 88th Cong., 1st Session.
- WOLFF, R.P. (1945) Miami economic pattern of a resort area. Coral Gables, Florida: University of Miami.
- WU, Yuan-Li (1965) Fluctuations in defense spending and their economic impact on Hawaii. Honolulu: Economic Research Center, University of Hawaii.
- YOUNG, George (1973) Tourism: blessing or blight? Harmondsworth: Penguin.
- ZINDER, H. AND ASSOCIATES, INC. (1969) The future of tourism in the eastern Caribbean. Cited by UNCTAD, 1973, p.20.

DECLARATION

This thesis has been composed by me and
it embodies the results of my own work.

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July, 1974